NATIONAL PETROLEUM NEWS

Unit Development of New Pools Fostered By Mid-Continent Association

TULSA, Dec. 22

By Lawrence E. Smith
N. P. N. STAFF WRITER

THROUGH the Mid-Continent Oil & Gas Association and, indirectly, through the American Petroleum Institute, impetus has been given to unit development of producing fields.

The former body has established the machinery for action, and while it can do no more than advise and suggest, it has thrown its official weight against the planless wildcatting now going on.

So many resolutions have been adopted by the various organizations of the oil industry within the past two years, dealing with overproduction, that one more may receive little emphasis.

Skipping over the preliminaries and the preambles of the resolution adopted by the directors of the general Mid-Continent Oil & Gas Association on Dec. 19, one does find solid matter. Incidentally, this is the first time the association has endorsed the policy of unit development.

There is so much to be done and so many plans proposed as curatives to the present situation that something that has had preliminary test is the only thing upon which agreement could be reached. Endorsement of unit development is endorsement of the cooperative type of work that has been worked in numerous instances in the states embraced in the Mid-Continent association the past two years.

Had the directors stopped with a resolution merely praising cooperative effort, their action would have had little weight and would have been a repetition of the action taken at a general meeting of the Oklahoma-Kansas division last May. They went farther. Machinery is provided to promote cooperative work. A committee of nine members is to be appointed by President W. N. Davis next week. He will select three members from each of the three divisions of the association, Oklahoma-Kansas, Texas and Louisiana-Arkansas. In turn, each of the three district blocks of the main committee will expand itself into a regional committee of seven members.

When all these committees shall have been organized, the tasks they are to set themselves to are indicated in the resolution. The directors said:

". . . . it is resolved by this board of directors that all producers of oil be and they are hereby urged to adopt a general policy of restricting unnecessary drilling, of refusing to buy spread of undeveloped acreage in or about new drilling projects, or to contribute to or participate in the opening of new areas where the acreage has not been pooled or unitized or a cooperative method of orderly development arranged . . ."

The main committee and the regional committees are asked to study these points of attack and to devise the most effective plan under which the association can function in carrying out the suggested general policy.

No time is to be lost in getting the association work started. The resolution provided that the president shall call another meeting early in January, at which time the suggestions of the committeemen will be considered.

What would be the effect of wholesale unit operation—the term being used here to embrace many things, from outright pooling of acreage to formal understanding between producers as to method and rate of development?

It would have no effect upon what is now in sight; it would operate only on new territory yet to be tested. New areas have been opened in recent weeks in California, Texas, Oklahoma and Kansas. Some of it is covered by producers' agreements, most of it is not. Kansas can, apparently, increase its present production by 50,000 barrels or more, with the new territory in Sedgwick county entering development phase.

Oklahoma has prospect of increasing its present production early in the year by at least 50,000 barrels, the pools now being drilled promising to take care of the decline of recently flush areas and have that much to spare. West Texas certainly will not be held to its present figure of production, prorata allowances being in line for increase. California, the industry agrees, is perhaps more of a problem than are the other areas.

There are more wildcats under way now than there were a year ago and they are certain to open considerable new production. They, also, would

"Highs" in the Outlook

(As presented by President Reeser, of the American Petroleum Institute, before directors of the Mid-Continent Oil & Gas Association, Dec. 19. Mr. Reeser's full statement appears on page 19 of this issue.)

100,000 barrels of refinery capacity is now building in this country, mostly where crude is cheap.

200,000 wells are being operated today without proper remuneration.

A tariff on crude oil, as has been proposed, would stimulate building of refineries in South America and lead to the shutting off of American products from foreign markets.

In view of the fact more exploratory wells are being drilled now than ever before, a moratorium of at least four months should be declared in starting unnecessary wells, especially wildcats.

Proposed bills for state laws bringing about cooperative development of new oil and gas pools will be filed with the Federal Oil Conservation Board and the oil associations early in January.

not be affected by the unit development policy.

Generally speaking, development now under way and new pools that may be opened by wildcats that have been started will have to be taken care of as they have been in the past—by proration if that becomes necessary or by unrestricted drilling and production. The only thing now held back in the Mid-Continent by agreement is the Mission pool, of Seminole county, which is not to be opened to production until Feb. 15.

The remedial steps advocated by the association directors, therefore, pertain to wells yet to be started. They aim a blow at the practice of the past of buying acreage spreads in a block, and thus assisting in the opening up of new territory. Now there is no objection to the opening of new pools, it is what happens after they are opened that hurts.

A wildcat that is financed by the sale of acreage invariably is surrounded by competitive leaseholds and in the absence of an agreement, the owners hasten to meet their lease requirements and protect their property by starting the offsets. These in turn call for other wells and the tendency of late years has been to start all the 10-acre locations on a lease to drilling at the same time.

The Mid-Continent Oil & Gas Association movement is the outgrowth of numerous discussions between prominent operators in recent weeks. The American Petroleum Institute directors have interested themselves in it and at the meeting of the Mid-Continent association directors on the 19th, President E. B. Reeser, of the A.P.I., made a short talk, giving his views on the present-day problems and urging action.

He said he was not concerned with the current situation, that production and imports are not greatly out of line with consumption and exports. The widespread wildcatting campaign is what is alarming, Mr. Reeser said. More exploratory wells are being drilled now than ever before in the history of the industry. The possibility exists that several major fields may be found simultaneously. He urged a cessation of drilling activity on unnecessary wells, especially wildcats, for at least four months.

That the A.P.I. will enter vigorously into the work of stabilizing production has been indicated by Mr. Reeser. A meeting of the directors will be held in January and all possible support will be given to the movement which has been given concrete form by the Mid-Continent association. It is expected that a California committee will be set up by the A.P.I. or by the Chamber of Mines and Oil, to work along the lines of the Mid-Continent committees and that the same thing will be done in the Rocky Mountain states.

Of course, the whole effort is pitched upon the realization by the industry that cooperative development will provide a stabilizing influence and in time will relieve the industry of the wide swings in supply of oil.

At the same meeting, the directors heard James A. Veasey, general counsel for the Carter Oil Co. outline the bill which he and co-members of the American Bar Association committee of nine have prepared for submission to state legislatures. The proposed law would enable a majority of operators in a single pool to draw a plan of development and then, when issued as the rule on that pool by the state, would be binding also upon the dissenting minority, if one existed. No action was taken by the association directors on the proposed law.

Suggestions on unit development, in written form, were submitted to the directors by Ray M. Collins, umpire of the Seminole district, who has spent most of his time the past year promoting cooperative work among producers of that district. Mr. Collins said:

"Make every wildcat a key well. The lessees interested in that area should enter into an agreement before the starting of said well or wells, as to the spacing, drilling and methods of producing oil and gas. Companies should not subscribe to the drilling of any new wells unless they have some agreement for the control of development work, or they shall control all of the adjacent leases that may be affected by the bringing in of a big well. Where leases are expiring it would be better to lose the lease than to drill without a prearranged plan. Any plan for the development of a new area could have a common ownership in the following: water and fuel, legal committee, roads, fire protection, hospital supplies and doctor, engineers, schools, taking true measurements of wells, sub-surface and geological data.

"The area to be tested should be subject to the rulings of a committee of the operators owning leases in said area and this committee should consult with a central committee as to the general policies of the Mid-Continent association."

Recognizing that acreage pooling and orderly development have in the past been held back by the widely diffused royalty interests, the association directors included in their resolution a direction to the legal committee of the association to prepare and have ready by next meeting a clause for lease forms providing that, when operators pool acreage, the royalty is automatically pooled also. This provision was worked out by an A.P.I. committee, which recommended that lease revisions be handled through local associations.

Those in Attendance at the Directors' Meeting

J. H. Hill, Texas Co., Tulsa.

C. C. Herndon, Skelly Oil Co., Tulsa.

Geo. O. Baird, Shreveport, La.

Jos. B. Elam, secretary, Mid-Continent Oil & Gas Assn., La.-Ark. division, Shreveport, La.

J. R. Crawford, Crawford & Sebastian, Shreveport.

C. F. Shea, proxy for A. M. McCorkle, Dixie Oil Co., Shreveport.

B. C. Conner, Papoose Oil Co., Tulsa.

Frank Cullinan, Papoose Oil Co., Dallas.

Jos. P. Laney, secretary Texas division, Mid-Continent Assn., Dallas.

D. A. Richardson, Marland Oil Co., Okla. City.

D. J. Moran, Marland Oil Co., Ponca City.

J. C. Denton, Mid-Continent Petr. Corp., Tulsa.

P. M. Miskell, Empire Companies, Tulsa.

P. G. Walker, Jr., Tulsa.

C. J. Wrightsman, Wrightsman Oil Co., Tulsa.

Fred A. Cook, Prairie Oil & Gas Co., Tulsa.

H. R. Straight, Empire Companies, Bartlesville.

Rush Greenslade, Gypsy Oil Co., Tulsa.

James A. Green, Shell-Roxana Petr. Co., Tulsa.

G. S. Rollin, Shell-Roxana Petr. Co., St. Louis.

W. W. Fleming, Mid-Kansas Oil & Gas Co., Tulsa.

Allman M. Blow, Amerada Petr. Co., Tulsa.

W. G. Skelly, Skelly Oil Co., Tulsa.

J. Edgar Pew, Sun Co., Dallas.

W. C. Franklin, Tidal Oil Co., Tulsa.

Wirt Franklin, Wirt Franklin Petr. Corp., Ardmore.

John H. Kane, Phillips Petr. Co., Bartlesville.

H. V. Foster, Indian Terr. Ill. Oil Co., Bartlesville.

E. B. Reeser, Barnsdall Oil Co., Tulsa.

Wm. N. Davis, Phillips Petr. Co., Bartlesville.

James A. Veasey, Carter Oil Co., Tulsa.

Warner Clark, California Co., Dallas.

Hines H. Baker, proxy for John R. Suman, Humble Oil & Ref. Co., Houston.

C. L. McMahon, Tulsa.

Dana H. Kelsey, Prairie Oil & Gas Co., Independence, Kansas.

R. F. MacArthur, Barnsdall Oil Co., Tulsa.

J. H. Brennan, Barnsdall Oil Co., Tulsa.

Hold Up Starting New Wells 4 Months

A Moratorium of at Least This Period in Starting Unnecessary Drilling, Especially of Wildcats, Would Safeguard the Industry Against New Fields Being Found Now, When Oil Is Not Needed, Says Institute President

THE accompanying is a statement on the general conditions in the oil industry made Dec. 19 before the directors of the Mid-Continent Oil & Gas Association by E. B. Reeser, president of the Barnsdall Corp., and president of the A. P. I.

CONSERVATION has become the key-note throughout the whole world. This is especially true with reference to the petroleum industry. This does not mean hoarding our natural resources for posterity, or taking any other unreasonable line of action.

According to the figures compiled by the Bureau of Mines, we had in storage above the ground, at the close of October, 1928, more than 600,000,000 barrels of crude and refined products. The cost for carrying this tremendous inventory is staggering, especially when we consider that the best place to store our petroleum is in the formation where it has been held by Nature for centuries.

I believe it is uneconomical and unnecessary to add any additional tankage to our storage facilities. Production and consumption throughout the entire world should be balanced. This applies particularly to the petroleum industry, but it also applies to other industries.

America has achieved a part of its greatness through a policy of mass production. It probably went too far. The pendulum should swing back to the proper point where production and consumption are balanced, as has already been done in some of the outstanding industries—especially the iron and steel industry. We take great pride in pointing to our efficiency, and properly so; but efficiency ceases to be efficient when it produces an over supply of any commodity and causes the price thereof, which it can obtain in the open market, to fall below its cost.

The petroleum industry, is in fact, three great industries which must be co-ordinated in order to assure permanent stability, The unwarranted expansion of distributing facilities during the past few years is the result of an overexpansion in the construction of refineries, with production far in excess of the demand. This, in turn, was due to the overproduction of crude petroleum.

The efficient capacity of present refining plants in the United States is at least 30 per cent greater than the demand for refined products. Notwithstanding this condition, there are today in the course of construction new refining units with a capacity of over 100,000 barrels per day. The greater number of new plants are located in sections where cheap crude is available, and it will result in their products being shipped into the territory of the present plants. A number of the new plants are being financed from sources which are interested in present refining facilities. Evidently, they do not realize that the temporary profits from their new investment will at the same time depreciate their older investment.

The recent annual meeting of the American Petroleum Institute showed a strong tendency toward conservation. The directors, by a unanimous vote of those present, adopted a code of ethics which promises to stop the further duplication of unnecessary gasoline pumps throughout the Nation. It also continued to show a great interest in the conservation of our petroleum reserves.

More than 200,000 wells are being operated today without proper remuneration. They are owned largely by individual operators and small companies. Settled production is the backbone of the industry and we are justified in attempting to bring about a condition which will enable these properties to be operated on a reasonably profitable basis.

I AM not alarmed over the present situation. The difference between production plus imports, and the domestic consumption plus exports, is comparatively small. The larger producers can correct the situation by contributing a relatively small percentage of their daily production to the cause, and thus cure the patient. Petroleum products are essential to the Nation's welfare. Regardless of the present potential production, we are drawing on Nature's greatest gift to mankind at a tremendous rate. It is being used, because of its cheapness, where other products should be used.

There are those who believe that a tariff on imported crude will stop the flow of foreign crude into this country, thus creating a larger demand for our domestic products and solving our over-production problem. The idea is filled with many difficult phases and it justifies a thorough discussion before forming a definite opinion.

I believe a careful analysis will show that a prohibitive tariff on crude will not be in the best interests of the petroleum industry of America. During the first ten months of 1928 imports of crude and refined products into this country totaled 75,934,000 barrels; whereas, our total exports of crude and refined products totaled 131,368,000 barrels. With a heavy duty on imports, it is fair to assume that refineries will be erected in the South American oil fields with sufficient capacities to supply the European markets, and thus shut out American products from these desirable outlets.

MY GREATEST concern is over the unprecedented wildcat drilling campaign. More exploratory wells are being drilled in the United States today than at any time in the history of the industry. It is not my desire to predict or to suggest disaster. But a few years ago several major fields were discovered almost simultaneously. The same thing can happen again. It is not necessary to predict what would happen to our industry with such a recurrance, added to our present overproduction.

I would urge the industry to declare a moratorium of at least four months on the starting of any unnecessary wells, especially wild cats.

Cooperative movements have proven, beyond the question of a doubt, to be useful and effective. The petroleum industry is in better condition because of these movements. I believe that, through enlarged activities in cooperative movements, the unnecessary expenditure of capital will, to a large extent, be stopped.

The Conservation Committee of the American Bar Association, acting independently of any other agency, has been studying the question of the necessity for legislation in the important oil producing states, to relieve the industry from the anti-trust laws in relation to cooperative agreements among operators for the stabilization of our business. The committee also has been studying the necessity of state legislation to bring about the cooperative development of new oil and gas pools, allowing the industry almost complete freedom of

action, but at the same time providing for means that, in a measure at least, will stop the competitive drilling of new oil pools, thereby enabling the industry to balance supply and demand.

These bills, with the report of the committee analyzing them, will be filed with the Federal Oil Conservation Board, the American Petroleum Institute and the various important oil organizations throughout the country early in January. As I understand the purpose of this work, it is entirely sympathetic with the industry, and the public interest is fully safeguarded, and of course is suggestive to the industry, rather than otherwise.

William N. Davis Again Heads Association

TULSA, Dec. 22.—Directors of the Mid-Continent Oil & Gas Association, meeting Dec. 19, re-elected William N. Davis, Bartlesville, president for the coming year. Vice-presidents were elected as follows: For the Oklahoma-Kansas division, W. C. Franklin, Tidal Oil Co.; for Texas division, J. D. Collett, independent producer; for the Louisiana-Arkansas division, George O. Baird, independent producer. Harry H. Smith was re-elected secretary and treasurer.

The new vice-presidents succeed C. C. Herndon, Skelly Oil Co.; W. H. Francis, Magnolia Petroleum Co. and M. J. Grogan, Louisiana Oil Refining Corp.

Former Officers Remain With N.I.O.M.A.

LINCOLN, Neb., Dec. 22.—O. J. Shaw of Lincoln, Neb., succeeded R. H. Steinmeyer of Beatrice, Neb., as second vice-president of the Nebraska Independent Oil Men's association when that group held its eighth annual convention in Hastings on Dec. 4, 5 and 6. All the other officers were re-elected. The two directors whose terms expired were returned to the board.

Secretary Charles M. Sutherland reports the program of the convention went off as scheduled except that George Coryell of Lincoln, former N.I.O.M.A. president, failed to come on account of illness.

BROOKLYN, N. Y.—Parke R. Kolbe, president of the Polytechnic Institute of Brooklyn, announces that the institute will hold open house on Friday, Jan. 11, between 4:30 and 10 p.m. The laboratories and shops will be in full operation at that time and there will be student guides to show visitors through. A moving picture, "Opportunity," portraying the four fields of engineering, civil, electrical, mechanical and chemical, will be shown.

Robert E. Wilson Heads New S. O. Indiana Department

Robert E. Wilson

CLEVELAND, Dec. 24

ROBERT E. WILSON, a director of research of the Standard of Indiana and one of the most widely known petroleum technologists in the country, has been promoted to a new position with the double title of assistant to the vice-president in charge of manufacturing, Beaumont Parks, and head of a newly created development, patent and trademark department of the Standard of Indiana.

Mr. Wilson was graduated from the College of Wooster, Ohio, and took two years post graduate work in chemical engineering at Massachusetts Institute of Technology. During the war he was captain and then major in the chemical warfare service, directing defense chemical research.

Later he was appointed director of the research laboratory and associate professor of chemical engineering at Massachusetts Institute of Technology which positions he held until October, 1922, when he associated himself with the Standard of Indiana. He has published a considerable number of papers on lubrication, corrosion, volatility of gasoline and others dealing with the various physical properties of hydrocarbons.

Mr. Wilson is the developer of Iso-Vis, the prediluted motor oil put out by the Standard Oil Co. of Indiana, and was the expert witness for the defense in the suit brought against the Patent Club by the United States government.

The special master found in favor of the Patent Club. Mr. Wilson also is the inventor of the balloon as a means of reducing evaporation loss.

Divisional Sales Managers Meet in Petersburg

RICHMOND, Va., Dec. 22.—Meeting for the first time since the Capitol Oil Co. became affiliated with the American Oil Co., officials of the concern gathered at the Petersburg Hotel, Petersburg, Va., to discuss matters of interest to the divisional managers and others engaged in the oil business. Those in attendance were entertained at a luncheon and dinner.

The company, through such meetings, is endeavoring to bring together all divisional managers and others in the employ of the company. Prominent among officials of the American Oil Co. in attendance were: J. Blaustein, vice-president and general manager; H. Clausen, manager of the lubricating department; George P. Penniman, Jr., manager of the personnel department, and Lee Sonneborn, division sales manager. W. J. Barton, president of the Capitol Oil division, presided.

The Capitol division maintains 12 bulk plants from which service is extended to the following cities: Petersburg, Blackstone, Culpeper, Boydton, Fork Union, Hopewell, Milford, Mineral, Toana, Wakefield, Warrenton and White Sulphur Springs, W. Va.

The American Oil owns within a 25-mile radius of the cities a number of filling stations, where they will dispense Amoco gas, the original special motor fuel; Amoco-Strate, Anti-Knock Gas and Amoco-Motor Oils.

Wildcats Enjoy Christmas "High Jinks" Party

LOS ANGELES, Dec. 22.—Oil men of California had a barrel of fun Dec. 21 at the annual Christmas Jinks pulled off by the Wildcats of the California Chamber of Mines and Oil.

A play was presented poking fun at well known oil companies for their progress in cooperating in the general conservation movement. Each player was given an assumed name sounding very much like some official of some well known company. The companies' names were changed, but no one failed to recognize the company meant. Part of the play had much to say about the buying of stock on the exchanges in smaller oil companies. But it was all fun and was so taken. Close to 700 attended.

Code Should Tend to Hold Down Unprofitable Retail Outlets

By Warren C. Platt
EDITOR

Second discussion of the code of marketing ethics adopted by the American Petroleum Institute at its annual meeting, Dec. 6. For full details of code see first article Dec. 12 issue (page 17) and for first discussion of the value of refiners and jobbers posting their true prices, see page 19, issue of Dec. 19, of NATIONAL PETROLEUM NEWS.

EVERY one will agree with the intent of the code of marketing ethics just adopted by the American Petroleum Institute, to stop the practical giving away of gasoline vending equipment and to put on such restrictions as will slow up the promiscuous and unnecessary installation of pumps.

The objection which has been made to this provision of the code is that it "freezes" the older companies into any advantages they now have and prevents newer companies with ambitions from going ahead. Those who drafted the code point out that the provision does not prevent any company from going after present installations of other companies and putting in their pumps in place of existing pumps on the old terms of nominal rental etc., but that all pumps placed hereafter must be with a fair compensation for their value to the oil company.

In a way, the discussion is just a little bit after the fact. The free and careless installation of gasoline pumps has been declining very rapidly in the past two years, as the pump manufacturers can tell you. It has been declining for two reasons, that the point of saturation for this type of outlets has about been reached for the moment but more particularly because a fair-sized percentage of these dealer type of outlets for gasoline distribution are of exceedingly doubtful value to the oil companies. They do little gallonage, are a poor credit risk and are being displaced by the better managed, better serviced and located drive-in filling stations. Also this type of outlet is of doubtful value to the dealer himself, who has to drop attention to a regular customer inside his place of business to answer a honking horn outside, because if it is not answered forthwith the honking prospective customer drives away. There is still enough opportunity for dealer pumps, however, to warrant the provision of the code.

In addition to this factor, which in a practical way will curb ambitions of the newer oil companies, is the fact that no more equipment should be put out in new locations without a careful study of the need for it, the study based upon the percentage of natural increase in gallonage possible in that district, city block or street corner.

A new company entering such a district will find, probably, that it will have to battle for all of the natural gallonage increase and probably some of the old gallonage, which will mean that if the new company is successful in building up a profitable gallonage that the older located companies will have to take less gallonage than they have enjoyed in previous years. If the newer company is satisfied that the older companies will give up this extra gallonage without protest, the newer company is fooling no one but itself. Price wars start from just this kind of faulty thinking.

There is just so much gallonage to go around and there will be a certain limited increase in gallonage each year, the amount depending upon the district. The sooner every oil man gets that clear in his mind and governs himself accordingly, the sooner the oil industry will be free of unnecessary price fights.

Out in newly built up districts, or districts that are about to be built up, there are no pumps—at least to speak of—at the present time. Into these districts, which are the only ones where there is a fair chance to get reasonable gallonage at a profit, all companies are free to go on an even basis under this provision of the code. It is no hardship on any company to require that all go after new territory by requiring dealers there to pay for their equipment. However, it is doubtful if in much of this type of new territory of which we are writing, the average oil company will bother with dealers. It preferably will put in its own stations.

If the provision will do anything, it should serve to prevent oil companies from putting in unprofitable new outlets, to which they should not object.

The code specifically names and prohibits various ways of evading getting around the major prohibition against free equipment, to-wit, prohibiting loaning of money, long credits, installation of greasing pits, construction of canopies, painting, advertising allowances and all the other things that an ingenious price cutter can think of doing. These prohibitions are proper and naturally follow the major prohibition but if the refiners and marketers and the big integrated companies follow a sensible system of pricing their products and thus keep only reasonable margins between the delivered tank car price of gasoline and the consumers' price, no one need lose much sleep over it all.

REASONABLE margins, as distinguished from the excessively wide margins of the past several years, are the only sane means of cleaning up these bad practices. If the oil industry relapses to its old scale of outlandish prices, all these evils condemned will return very quickly, even though the Federal Trade Commission may have all the power of the United States Supreme Court in the matter and be equipped with the prohibition enforcement unit in the bargain. Rules of conduct are all right but they are ineffectual in the face of economic pressure.

It would be more to the point, than all these rules, if the leaders of the oil industry declared that each would use the tank car market for his territory as the price to base his tank wagon and service station price on, regardless of what his own crude and refinery costs show. That would insure proper margins and it also would insure a profitable tank car market. These rules, as above outlined, will work as long as the industry has a sound price structure, but they won't work the minute the industry fails in that regard. The gentlemen who devised the code might just as well content themselves with that thought right now, because if they don't they are fooling no one but themselves.

Attitude of Independent Marketers in Code Being Sought by I.O.M.A.

CHICAGO, Dec. 24

THE extent of the knowledge of the general Independent marketing industry on the Code of Marketing Practices endorsed by the American Petroleum Institute at its meeting in Chicago early in December is being sought by the Independent Oil Men of America.

Through questionnaires sent out Dec. 17, Lou Harrington, executive manager of this association, which represents the independent marketers, is asking companies of this classification over the country these questions:

"Were you ever consulted regarding the proposed code by the American Petroleum Institute, or any code committeeman?

"Do you feel that the code as adopted by the American Petroleum Institute in December, 1928, is a fair code for the average Independent jobber?

"Do you feel that the Independents should be represented in this matter at the Trade Practice Conference which will doubtless be called soon by the Federal Trade Commission?"

Marketers answering these questions are also asked to suggest what the representation of the Independent interests before the trade body should be and they are also asked to give their objections to the present draft of the code.

The information sought is to be a guide to the trustees of the Independent Oil Men of America, who will meet in Chicago Jan. 14 to consider the code.

"My purpose in writing this letter is not to attempt to defeat the present code—it is simply to protect the interests of those Independents who have had no chance heretofore to express their opinion in the matter," said Mr. Harrington, in his letter accompanying the questionnaire. He also said:

"In spite of the fact that the statement has been made that wide publicity was given to the proposed A. P. I. code, I think it is safe to say that practically no Independent operating less than 100 stations ever heard more than the vaguest sort of rumor of what the code would contain, and in this respect the A. P. I. is not entirely to blame since there is in existence no strong central Independent group with whom they might confer. That is not their fault."

Mr. Harrington's letter also brought out that he had heard a number of different interpretations placed on the proposed rule in the code that actual prices must be posted for all classes of deliveries of gasoline and kerosene; also of the clause providing that refiners must not sell marketers violating any of the provisions in the code; and also of the provision relating how companies observing the code could meet competition of companies violating the code.

READERS of National Petroleum News who want to refresh their memory on the various steps concerning the Code of Marketing Practices taken at the A. P. I. meeting at Chicago, and the discussion concerning the code in the open meeting, will find this given completely in its Dec. 12 issue, pages 17-22.

ALONG with his questionnaire letter Mr. Harrington sent the Independents a copy of a letter he wrote Dec. 17 to Otis B. Johnson, secretary of the Federal Trade Commission, at Washington, expressing the desire of the Independent Oil Men of America to be represented at the commission's conference. This letter was as follows:

"At the meeting of the American Petroleum Institute held in Chicago, in December, 1928, a marketing code was adopted.

"The registration at that meeting had approximately 1800 people as the records of that organization will show. The meeting at which the code was voted upon by the membership at large was called at 8 o'clock in the evening and was attended by something over 100 people. It was common report that something like 100 people voted in approval of the code and that some half dozen voted against it. I am of the impression that a motion was made to make the adoption of the code unanimous and that, in spite of the fact that there were some 'noes' reported on that motion, the chair ruled that the code was unanimously adopted.

"I CALL these facts to your attention in behalf of those Independent oil jobbers who comprise the membership of the Independent Oil Men of America, as well as in behalf of the great unorganized mass of Independent jobbers, of whom there are many hundreds throughout the United States.

"On behalf of the Independent jobbers, this organization desires to be represented at the proposed Trade Practice Conference, when, if and as such a conference is held on this matter by the Federal Trade Commission.

"Will you be good enough to inform me what is the custom or regulation in regard to announcement of the holding of such a Trade Practice Conference.

"With our request on file, may we anticipate a notice of the meeting."

Index to Coming Meetings

New England Oil Men's Association, Chamber of Commerce Bldg., Boston, Mass., Jan. 9.

Oklahoma Oil Jobbers Association, Oklahoma City, Okla., Jan. 24, 25.

Wisconsin Petroleum Association: Park Hotel, Madison, Jan. 16 and Feb. 13; Schroeder Hotel, Milwaukee, March 13 and Apr. 10; Beaumont Hotel, Green Bay, May 15.

***North Dakota Petroleum Association, Fargo, N. D., Jan. 31 and Feb. 1.**

American Oil Men's Association, Congress Hotel, Chicago, Feb. 12, 13, 14.

Ohio Petroleum Marketers Association, Hotel Statler, Cleveland, O., Feb. 13, 14, 15.

Iowa Independent Oil Men's Association, Fort Des Moines Hotel, Des Moines, Ia., Feb. 19, 20.

Illinois Petroleum Marketers Association, Pere Marquette Hotel, Peoria, Ill., Feb. 27 and 28.

American Association of Petroleum Geologists, Fort Worth, March 21, 22, 23.

American Oil Burner Association, Hotel Pennsylvania, New York City, Apr. 9, 10, 11.

*Hotel to be announced later.

Western Refiners Better Girded for 1929 Through Plant Improvements

By J. C. Chatfield
N. P. N. STAFF WRITER

TULSA, Dec. 24

REFINERY construction work in the Mid-Continent field has been heavier during the past year than at any time since the wave of cracking plant building swept over the field several years ago. A large number of projects have been in progress in various parts of the field throughout the year.

The building has not been confined to the West Texas district. The development of new fields there, however, has encouraged the building of a large number of plants which now have an operating capacity of nearly 100,000 barrels per day. This will be increased by half within the next few months as plants now under construction are completed.

Cracking plant construction has not been as active as it was a few years ago. In its place, refiners have been specializing on modern distillation equipment designed to increase their yields of gasoline and other light products on the skimming operation. The installation of bubble towers on old shell still batteries has been a particularly important part of the construction work of the past year.

The installation of pipe stills likewise has gone forward at a rapid rate. Many small plants have been following the lead of those larger operators who have installed this type of stills with marked success.

In many cases these new pipe stills have been installed in conjunction with existing batteries of shell stills. In these installations the refiners are using the shell stills to remove light fractions from the crude and are making a wide cut of cracking stock or gas oil from the residuum which formerly was sold as fuel oil. This has had the tendency of further reducing the gravity of the fuel oil being offered for sale in the Mid-Continent.

In Kansas the El Dorado Refining Co. at El Dorado, Kans., has installed a pipe still to reduce the residuum from its shell still battery. This company also installed a series of bubble towers on its shell stills to improve fractionation.

The Derby Oil Co. at Wichita remodeled its Dubbs cracking installation by installing hot oil pumps, arranging to use the flash system and making use of larger reaction chambers. At Neodesha the Standard Oil Co. of Kansas remodeled its disillation system and added new equipment. A similar construction program has been under way at the Coffeyville plant of the National Refining Co. At Augusta the White Eagle Oil & Refining Co. has added to its tube still and fractionating equipment.

HOW Mid-Continent refiners during 1928 have been developing their plants to increase their efficiency and hence their chances of making profits in 1929.

By remodeling old shell still batteries, adding to them modern fractionating and heat exchange equipment and improving their combustion efficiency.

By installing pipe stills of various types and various capacities.

By putting in additional bubble towers to improve fractionation without rerunning.

By installing cracking equipment of various types.

By remodeling cracking equipment already installed, adding hot oil pumps and other equipment.

By installing various major and minor mechanical devices designed to improve efficiency, reduce labor costs, plug leaks and reduce waste all along the line.

By keeping their eye and minds open for new methods, processes and equipment that will still further improve their operations.

THE Skelly Oil Co. installed a new vapor recovery system in its plant during the year to round out the construction program which had been under way at its El Dorado plant for the past several years. At Arkansas City the Shell Petroleum Corp. has an enlargement and improvement campaign under way.

In Oklahoma the Rock Island Refining Co. at Duncan recently completed the installation of a tube still to serve as a reducing still in connection with its shell still battery. New towers were added to the plant with a net result that gasoline production has been materially increased.

At the same point the Western Oil Corp. has added new towers to its distillation system and installed a Jenkins cracking plant. The Jenkins unit has been placed in operation within the past few weeks.

The Wirt-Franklin Petroleum Corp., at Ardmore, has built a tube still and installed other modern equipment at its plant. The refinery of the Imperial Refining Co. at Ardmore also was overhauled before operations were resumed late in the summer.

AT GARBER, the Garber Refining Co., installed a new bubble tower to increase gasoline recovery and permit the recovery of a special narrow range kerosene. At this plant electric pumps were installed to replace 60 per cent of the pumping equipment formerly used.

The Empire Oil & Refining Co. completed the installation of two Dubbs cracking units at its Ponca City plant this year, completed the electrification of the plant, revised its still batteries and constructed a new compound house in the lubricating oil section of the plant.

At Blackwell the Globe Oil & Refining Co. installed new bubble towers on its still battery. The same company remodeled the old Sinclair plant at Cushing, installed bubble towers on the stills and began operations on West Texas crude brought to the plant by pipe line.

The Illinois Oil Co. remodeled its distillation equipment at Cushing, converting its still battery to a continuous basis and made other improvements. This company is planning to install a cracking plant within the next few months.

At West Tulsa the Mid-Continent Petroleum Corp. has begun work on two mammoth tube stills. It is reported that each still will be capable of handling 10,000 barrels of crude per day.

The Independent Oil & Gas Co. is continuing work on its Okmulgee plant by the installation of a 5,000-barrel pipe still. This unit will be used to replace some of the shell stills now in use at the plant. The construction program of the year included a new water tube boiler and a power plant with bleeder type turbine.

At Allen the White Oak Refining Co. is installing a Jenkins cracking plant and a new battery of shell stills with appropriate towers and tankage which will increase the capacity of the plant to 8,000 barrels per day. At

the same point the Homaokla Oil Corp. recently bought the Oil State Refining Co. plant which it is remodeling and enlarging.

The Anderson Prichard Oil Corp. is enlarging its plant at Cyril to produce greater quantities of special naphthas and technical products for which it has built up a growing trade. This company plans also to install a cracking plant.

In Arkansas the Houston Oil Co. has installed a new 3,500-barrel tube still at its Camden plant. The Root Refineries, Inc. likewise has installed a new pipe still which will increase the capacity of the plant to 7,500 barrels per day.

The Lion Oil & Refining Co. has installed a number of improvements at its large skimming and cracking plant at El Dorado. The MacMillan Petroleum Corp. is dismantling its small skimming plant at El Dorado and moving it to Norphlet where it will install a $750,000 plant.

IN NORTH Louisiana the Shreveport Producing & Refining Corp. has been engaged in a $350,000, building program which has brought the capacity of the plant up to 10,000 barrels per day from 5,000 barrels. A new pipe still has been installed as well as towers, loading rack facilities, boilers and tankage.

The Dixie Oil Co. remodeled the old Paramount refinery at Superior and put it into operation after a long period of idleness. The Bayou State Refining Corp. built a new 600-barrel lubricating oil plant at Houston.

In North Texas the Empire Oil & Refining Co. installed two new Dubbs cracking plants at its Gainesville refinery during the year. The Noble Oil & Gas Co. is building a Jenkins cracking plant at Burkburnett. The Continental Oil Co. of Texas is building a large cracking plant of its own design at its Wichita Falls plant. The Panhandle Refining Co. at Wichita Falls and the Oriental Oil Co. at Dallas have installed new bubble towers on its still battery this year.

In the Panhandle district Phillips Petroleum Co. has increased the capacity of the refinery it purchased from the Alamo Refining Co. from 2,000 to 7,500 barrels per day. At the present time the company is engaged in the construction of two more units which are designed to increase the efficiency of the plant and increase its capacity to about 10,000 barrels per day.

The Pampa Refining Co. built a 2,700-barrel plant of modern design embracing a pipe still unit with bubble towers.

The foregoing list of construction projects does not pretend to be a complete resume of building in the Mid-Continent district proper. It is ample enough to indicate that the year has been an active one in which refiners have sought to bring their properties up to the best modern standards thereby increasing yields of the more valuable products. In some instances skimming plant yields of gasoline have been increased as much as 10 per cent.

In the first 10 months of this year reports of the U. S. Bureau of Mines have shown a production of gasoline in Oklahoma and Kansas equal to 54.4 per cent of the crude charged to stills. In July the yield reached 55 per cent, dropped to 54.8 per cent in August but rose again to 55.8 per cent in September and 55.9 per cent in October. These figures are arrived at without deducting natural gasoline blended.

In 1927 the Oklahoma-Kansas group produced gasoline equal to 54.2 per cent of the crude charge, in 1926 the yield was 52.8 and in 1925 it was 49.2. Part of the increase may be attributed to lighter crudes but a large share is due to improved methods and equipment. The indications of recent months are that the ratio of gasoline production to crude charge next year in Oklahoma and Kansas will exceed 55 per cent for the year.

Paragon Refining Co. Purchases Stations in Cleveland, O.

CLEVELAND, Dec. 22

THE PARAGON REFINING CO., Toledo, O., has increased its marketing facilities to approximately 350 filling stations by purchase late this week of the Brooks Oil Co. in Cleveland.

There were 57 filling stations and 100,000 gallons bulk storage involved. The price was not given out. Paragon Refining will take charge of the Brooks stations on Feb. 1, and sell its own gasoline and motor oil under the Paragon name. John Edwards, vice president and general sales manager of Paragon, will be in charge temporarily of the Cleveland stations.

For more than three years Paragon has been developing its natural marketing territory and the acquisition of the Brooks Oil Co. marks its entry into Cleveland territory. Marketing outlets in Rochester and Syracuse, N. Y., and vicinity, were sold more than three years ago and since then Paragon has been developing markets with more favorable freight rates from its refinery at Toledo. The Wayco Oil Corp., Detroit, was purchased in July, 1928, adding approximately 100 filling stations and a bulk plant on the River Rouge to its outlets.

Changes in the Cleveland filling station, bulk plant, and delivery equipment are planned at once. Barging of products from the Toledo refinery to Detroit, Cleveland and other Great Lake ports may be underway by next summer.

Paragon's new bulk plant at 73rd and Denison avenue will be enlarged to 500,000 gallon capacity. A new warehouse and office will be built, as the Brooks Co. retains the present office and warehouse and will continue under that name to compound and sell soaps, greases and lubricants. The fleet of six tank trucks will be enlarged to 10 trucks by the Paragon.

All of the Brooks filling stations will be repainted in Paragon colors, and some of the equipment will be replaced.

Permanent executives for the Cleveland territory have not been named yet, but Mr. Edwards will be in charge temporarily. Mr. Edwards is president of the Wayco Oil Corp. at Detroit and its active head since July.

Barging of products on the Great Lakes has been contemplated by Paragon since the Wayco purchase last summer. The present Cleveland bulk plant is accessible only by railroad.

The Brooks Oil Co. has been a Cleveland marketer for about 32 years, and was owned and operated by the Wards. Alexander M. Ward was president; A. W. Ward, vice president; Chester A. Ward, treasurer; and Francis D. Ward, superintendent. The Brooks Oil Co. will continue to compound grease, soaps and lubricants in its present warehouse and office, which were not involved in the sale.

Nov. Gasoline Stocks Gain 2,104,000 Barrels

NEW YORK, Dec. 20.—A two-million barrel increase in gasoline stocks and a similar decrease in pipe line and tank farm crude stocks east of the Rockies was reported in the preliminary survey of the American Petroleum Institute for November.

Pipe line and tank farm gross domestic stocks east of the Rockies fell off 2,110,000 barrels in November.

Stocks of all refinery products showed a net increase of 836,000 barrels in November at refineries covering approximately 86 per cent of the country's operating capacity east of California, the institute reported.

Gasoline stocks increased 2,104,000 barrels during November, a much larger rate of increase than in October.

Kerosene stocks declined 258,000 barrels in November.

Stocks of gas and fuel oils east of California declined 1,335,000 barrels in November. Stocks of lubricants increased 26,000 barrels. Stocks of domestic and foreign crude oil at refineries increased 88,000 barrels.

Review of Late Production News

PRODUCTION rode on a remarkably even keel during the week ended Dec. 22, showing an increase of only 3950 barrels over the preceding week. This was due to California and West Texas, each of which showed a net increase of 6000 barrels a day. Production was at the rate of 2,550,750 barrels daily average, according to the American Petroleum Institute.

In Oklahoma, the Seminole district showed a decline from 262,000 barrels daily average to 256,750 barrels. Seminole proper gained 1000 barrels but St. Louis, Little River and Earlsboro all declined. There was a decline of 8600 barrels also in the other districts of Oklahoma.

Imports of crude oil were at the rate of 248,000 barrels a day during the week ended Dec. 22, compared with 234,429 barrels the preceding week. Total new crude supply was 2,798,750 barrels, as compared with 2,781,229 barrels the preceding week.

Oklahoma-Kansas

ALTHOUGH several wells in the Mid-Continent attained the 200-barrels per hour figure, the only new well to do so was the T. B. Slick No. 1-W. Davis, a new Wilcox sand producer three quarters of a mile north of the St. Louis pool, Pottawatomie county.

Located in the SW NW of 18-7N-5E, the extension had been swabbing about 50 barrels hourly from the sand topped at 4097 feet and drilled to 4107. When deepened about a foot it started flowing at a 200-barrel an hour rate, settling to a 167-barrel an hour average throughout the night. The well is offset to the east and the southeast by Wilcox sand dry holes.

Efforts to kill the Indian Territory Illuminating Oil Co.—Foster Petroleum Corp. wildcat near Oklahoma City with mud having been unavailing, the well is being deepened through an oil saver. Production, which amounts to about 5700 barrels daily, is coming from the Hunton lime, geologists have decided. Last reported drilling depth from the well was 6433 feet, in lime.

Both the Misener sand pool of western 8N-5E and the Marland Production Co. No. 1 Goodrich proved they were consistent performers. The former saw an inside location, which had been completed earlier as a 1300-barrel well in the Misener, deepened to a total of 21 feet of sand drilled, with a three-fold increase in production.

The Marland well in Sedgwick county Kansas averaged within a fraction of 200 barrels an hour when opened recently. Inadequate pipe line and tankage facilities have made it impossible to give this well a continuous test over a period of days. Its shutting in does not seem to hurt it much, however.

One of the most important failures of the week was the Wilcox dry hole which the Amerada Petroleum Corp. drilled in its No. 1 Gossland. This was an 800-barrel well in the Misener in the NE SW of 8-8-5 which the operators deepened to the Wilcox by agreement with the offset owners. The Wilcox was topped at 4328 feet.

California

DURING the week ended Dec. 19, a total of 26 new wells were completed in California for a total initial of 44,000 barrels. This is thought to be a record for a week in 1928 for the state.

Twenty wells are due at Santa Fe Springs in next ten days and completions will be frequent for the next month at least. Many of the producers are showing water and edge conditions are appearing.

Kettleman Hills is becoming active and leases are changing hands. General Petroleum Corp. leased its recently completed pipe line into field to Standard Oil Co. and this company will buy the 60 gravity oil from the discovery well at $1.65 a barrel as there is no posted price for the field.

A new well at Lawndale near Rosecrans and north of Torrance in Los Angeles county is flowing 850 barrels of 31 gravity oil with a gasoline content slightly better than 30 per cent, a shade better than Long Beach crude of similar gravity. Tracts are small, ranging from one-quarter to four acres, and at least six wells will be drilling inside of a month. The oil sand is found around 5800 feet.

Little progress is noted in the movement to bring about agreement among Santa Fe Springs operators to repressure the upper zones with surplus gas from the lower sands and to further agree to pinch in wells to save gas. Committee in charge of movement adjourned to meet again Jan. 4.

Texas, New Mexico, Louisiana

ALLOWABLE runs under prorating practice are to be raised 30,000 barrels daily, beginning Jan. 1, in two west Texas fields. The Railroad Commission of Texas, which administers the state's conservation laws, has granted at request of Winkler county operators for a field maximum of 175,000 barrels daily as compared with the present 150,000 barrels. The Howard-Glasscock county limit will be 35,000 barrels instead of 30,000 barrels daily.

The permitted production of the three prorated areas in west Texas will total 282,500 barrels, as the Yates field of Pecos county continues under a daily maximum of 72,500 barrels. Other fields of the Permian salt basin region, where prorating has not been necessary, are yielding less than 83,000 barrels daily. The west Texas region, therefore, will continue to market less than 365,000 barrels daily under the production increases mentioned.

George Anderson's University wildcat in Sec. 11, block 17, Pecos county, about 14 miles west and a little south of the Yates field, began spraying 10 barrels of oil daily with 3,000,000 cubic feet of gas at 1960-1962 feet.

In the Big Lake field, Reagan county, the world's deepest oil well is showing steady increases in daily production. On Dec. 18, it gaged 1020 barrels of 53.1 A. P. I. gravity oil of 67 per cent gasoline content. The gravity, corrected to 60 degrees Fahr., had increased from its original test of about 44 degrees. The well belongs to the Texon-Group 1 companies and produces from total depth of 8520 feet.

Gypsy Oil Co.'s important test in 34-21S-36E, Lea county, New Mexico, is being plugged back for completion as a gasser after finding sulfur water at the 3900 foot level. Total depth drilled was 3950 feet. The Gypsy test demonstrated that additional wildcatting in southeastern New Mexico will be required to discover the flush oil indicated by structural evidence to exist in the region.

"Near the close of an eventful year, the greatest experiment of the time within the realm of cooperative exploitation, the formation of an operating unit embracing an entire productive horizon of one of the country's major fields—and, curiously, in Santa Fe Springs!"

Derricks, with their feet almost touching, in Santa Fe in 1923, *when owners more than*

A Workable Conservation Program

By Lester C. Uren, Professor of Petroleum

IN 1922 and 1923, the price structure of the American petroleum industry was shaken to its very foundations by the discovery and rapid development of a California light oil field of phenomenal productivity. The railroad town of Santa Fe Springs, now but a memory, situated on the very crest of the productive structure, gave the field its name.

Land within the town site was divided into town lots of small size and even the surrounding agricultural land was held in small tracts by many different owners. Competition for control of acreage was keen. The situation presented was one which permitted many interests new to the California oil producing industry, to gain a foothold.

Promoters of little or no oil experience did a thriving business in the nearby tourist center of Los Angeles, in the sale of shares and "units" in enterprises of doubtful economic merit. Leased oil and gas rights on a few town lots was considered sufficient in the way of land title to justify the formation of a company of several million dollars capitalization. In some instances, the area of a city block comprised the available drainage area for as many as six wells, costing upwards of $100,000 each to drill. Land owners were offered royalties as high as 50 per cent with bonuses of as much as $21,000 per acre.

When the productive area of the field was disclosed by drilling operations, it was found that control of its 1250 acres was divided among 45 different lessees, with as many different royalty owners. Upwards of 560 wells were drilled in the competition for early production, including approximately 90 dry holes, though the productive area could probably have been effectively exploited by half as many.

As a result, the field reached an early peak production of 333,000 barrels per day. Oil brought to the surface was far in excess of market needs and the quoted price dropped to $1.35 less per barrel than the same grade had commanded a few months previously. The producers were compelled to market more than a hundred million barrels of their oil at this depressed price.

Three separate productive horizons were disclosed, but recovery of oil in the two upper zones was inefficient due to haste in reaching and exploiting the more prolific third zone. Many wells never "paid out" and few properties have been overly profitable. The highly competitive policy of 1922 and 1923 cost the producers and royalty owners of Santa Fe Springs more than $200,000,000.

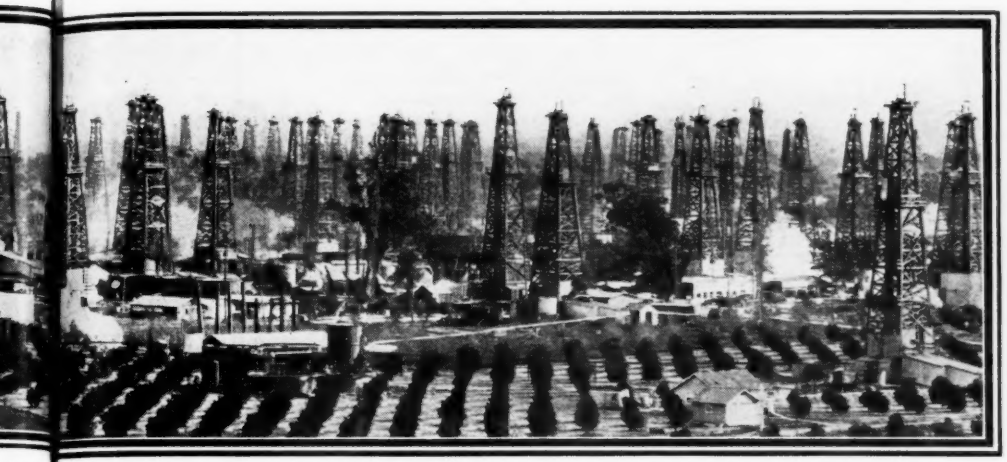
The years following 1923 brought other phenomenally productive fields in California and elsewhere, each with its lesson of hasty development, overproduction and price depression, bred of the competitive principle in oil production.

The oil industry had been reared in the faith that competitive methods were essential in encouraging the finding and development of new reserves, and that, when necessary, the infallible laws of supply and demand would temper the situation to keep production within the limits afforded by available markets. The oil producing industry of 1924 resented the implication of the President of the United States that its methods were economically wasteful and were resulting in rapid dissipation of a valuable and irreplaceable national resource.

Then came the Federal Oil Conservation Board with its questionnaires, cooperative committees and public hearings, designed to bring constructive enlightenment from within: a forum in which oil producers might convince themselves that their methods were not in their own best interests. New conceptions of oil production technic based on gas conservation were developed, emphasizing the necessity for cooperative measures in oil recovery; methods incompatible with the principles of the competitive system.

Comes 1928, a year of groping for the light: proration of production in many new fields; curtailment by agreement among competitive interests; conservation of gas by regulated back-pressure on producing wells; operators adhering to uniform methods of well control by agreement; storage of surplus gas in partially depleted oil fields. And now, near the close of this eventful year, the greatest experiment of them all, within the realm of cooperative exploitation: the formation of an operating unit embracing an entire productive horizon of one of the country's major fields—and curiously, in Santa Fe Springs!

As though to afford mere man an opportunity to rectify an economic blunder made in his lack of understanding of her ways, Nature has given us a new Santa Fe Springs: a deeper zone—perhaps a series of productive horizons comparable with those so wastefully exploited in 1923—in the development of which we may demonstrate our new-found knowledge. Fortunately too, this new development offers a means of par-



Article 2, Jan. 2nd issue—How operators in the Santa Fe Springs field met a highly competitive situation, and at the same time adopted field operating methods that promise to conserve gas and oil, increase recoveries and reduce costs.

the competitive development policy adopted cost producers and royalty $200,000,000

For a Highly Competitive Field

Engineering, University of California

tially remedying the mistakes of the earlier period; of security a part of the potential production of the shallower zones that was sacrificed in the competitive debacle of 1923.

In order to take full advantage of any opportunities that cooperative exploitation may offer, the producers in this field have organized an Operators' Conservation Committee, which is undertaking to control not only the time, rate and manner of production from the newly discovered lower zones; but also, through the organization of the Santa Fe Springs Gas Conservation Association, contemplates repressuring and cooperative exploitation of the more prolific of the upper zones.

The latter is an enterprise unparalleled in the history of the American oil producing industry, and its operation will be watched with interest by competitive groups of operators in other fields to determine whether it offers a real solution for the difficulties that have seemed to stand in the way of unit exploitation under diversified ownership.

Sub-Surface Conditions at Santa Fe Springs

To fully understand what the Conservation Committee proposes to do at

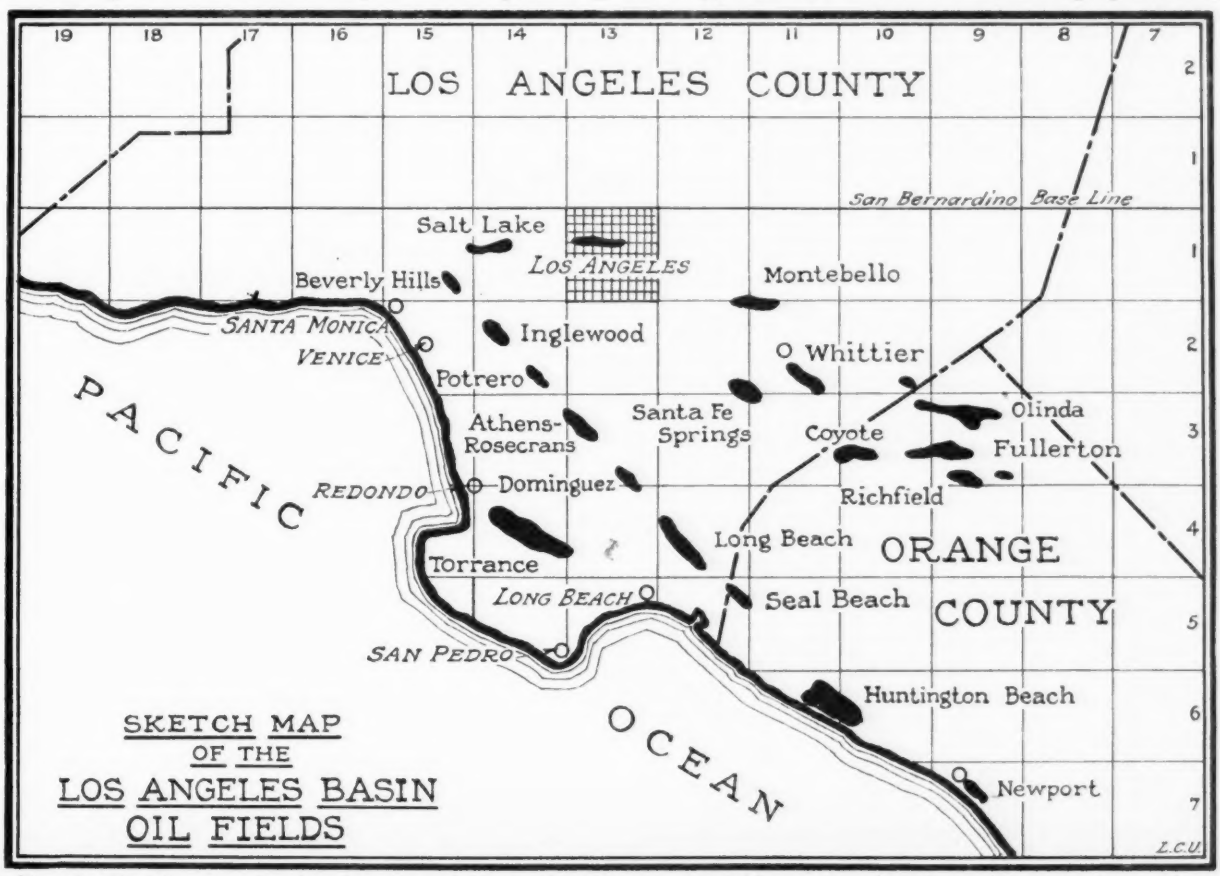


Fig. 4—Sketch map showing location of Santa Fe Springs oil field and its situation with respect to other Los Angeles basin fields

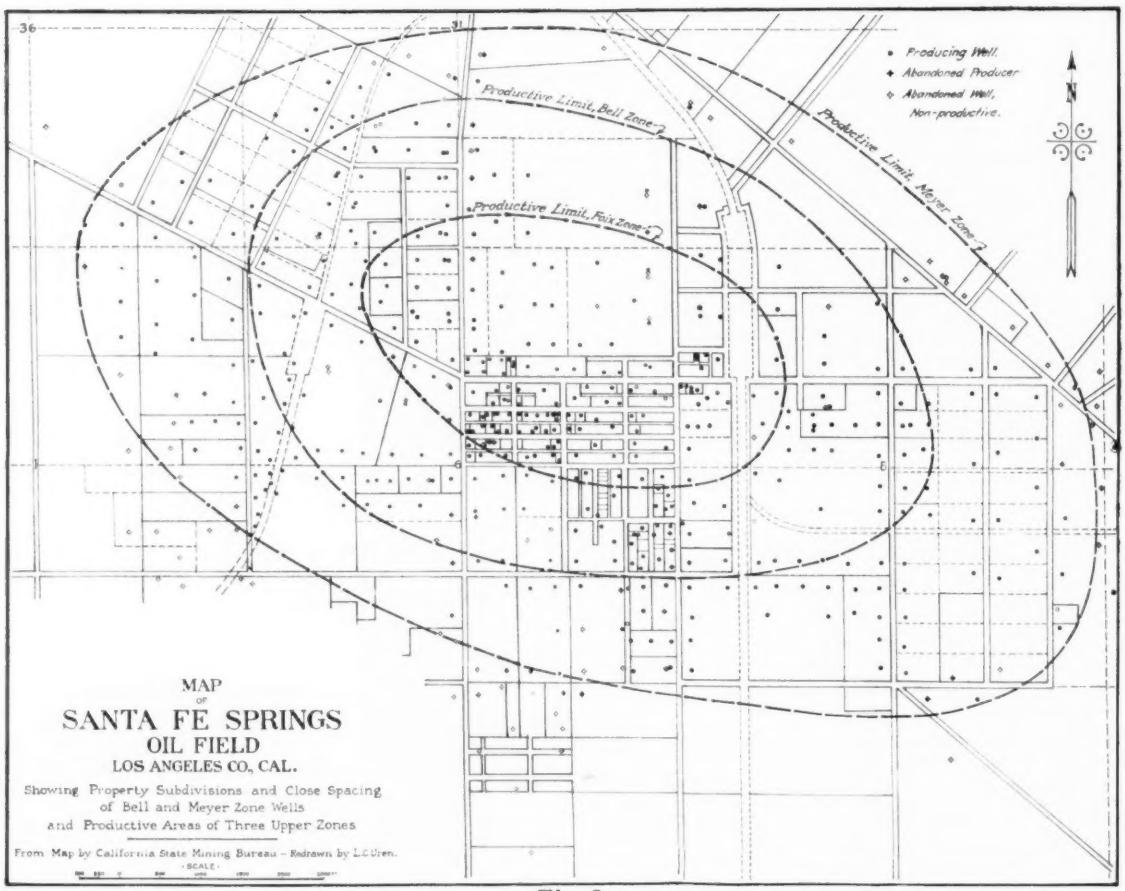

Producing Well.
Abandoned Producer
Abandoned Well, Non-productive.
N
Productive Limit, Bell Zone
Productive Limit, Foix Zone
Productive Limit, Meyer Zone
MAP
OF
SANTA FE SPRINGS
OIL FIELD
LOS ANGELES CO., CAL.
Showing Property Subdivisions and Close Spacing of Bell and Meyer Zone Wells and Productive Areas of Three Upper Zones
From Map by California State Mining Bureau – Redrawn by L.C.Uren.
SCALE

Fig. 1

Santa Fe Springs, it will be necessary for the reader to have in mind the structural and stratigraphic conditions attending the occurrence of petroleum in this field Concentration of oil and gas has been effected within a well-defined dome structure, the productive area being approximately twice as long in the direction of the major axis as in the direction of the minor axis. (See Figure 1). Formational dips are low, probably nowhere exceeding 15 degrees from the horizontal.[1]

Oil in economically producible amounts has been found in five different productive horizons, which have been given separate names by which they are locally known. The idealized geologic section reproduced in Figure 2 shows the relationship existing between these different zones and the depths at which they are found.

The first zone, known as the Foix, encountered on the crest of the structure at about 4300 feet, is barely commercial and was "passed up" by most operators in the early drilling. Only five wells now produce from this horizon. The oil has a density of about 30 degrees A.P.I., considerably heavier than that produced from the lower horizons.

Most of the early wells were finished in the second or Bell zone (3580 to 3950 feet), but when the possibilities of the more prolific third or Meyer zone, encountered at a depth of from 3950 to 4700 feet, were demonstrated, many of the wells were deepened to produce from this horizon. The oil produced from the Meyer zone has an A.P.I. gravity of about 35 degrees. Thirty wells now produce from the Bell zone and 211 from the Meyer.

The fifth or lowermost of the present known zones, called the Buckbee zone, was first penetrated by a well in July, 1928, and is generally considered to lie at a depth of from 5400 to 5900 feet at the crest of the structure. Later drilling for this lower zone has only recently established the presence of the fourth or Nordstrom zone at a depth of from 4850 to 5150 feet. The two recently discovered lower zones yield oil ranging from 35 to 38.6 degrees in A.P.I. gravity.

The peak of production from the three upper zones was reached in August, 1923, in which month, 10.-000,000 barrels of oil were produced from this field. (See Figure 3). Due to the high porosity of the sands, low viscosity of the oil and close spacing of the wells, production declined rapidly to 1,500,000 barrels per month only 18 months later. During the last four years, the rate of production has gradually declined from 50,000 to 16,000 barrels per day.

Since completion of the first Buckbee zone well last July, approximately 230 new wells have been started, most of which are now drilling with either the Buckbee or the Nordstrom sand as their objective. Some 20 of these have been completed up to the time of writing, with many more nearing their objective and due to be completed within the next month or two. Early wells penetrating the deeper zones have had initial productions averaging about 4000 barrels per day, hence the production of the field has been rapidly increasing during the last few weeks.

Production resulting from the new development will reach a peak variously estimated at from 150,000 to 250,000 barrels per day, probably in February or March 1929, depending upon the degree of control exercised by the Gas Conservation Committee in restricting flow from the new wells. From this new peak, the production rate for the field will probably again rapidly decline as the pressure in the Buckbee and Nordstrom sands is relieved.

Reference to the map reproduced in Figure 1 will show that the productive areas of the upper three zones are progressively larger with depth, the Bell zone being of greater extent than the Foix but smaller than the Meyer. There has been a more or less general expectation that this relationship might continue, and that the Buckbee and Nordstrom zones would

1. Case, J. B., "Report on Santa Fe Springs Oil Field." Eighth annual report of the California State Oil and Gas Supervisor, published by the California State Mining Bureau, May, 1923.

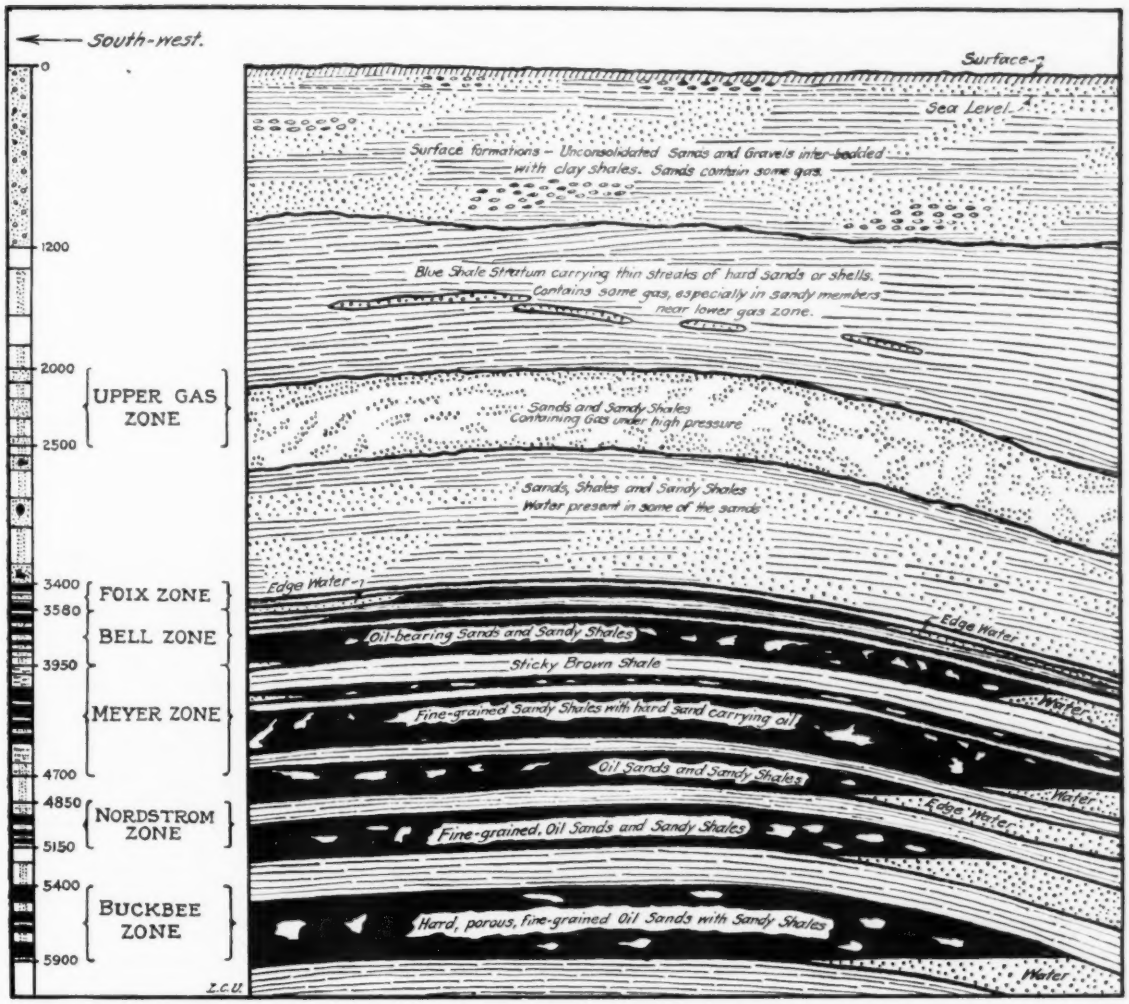


Fig. 2—Ideal transverse cross-section through the Santa Fe Springs oil field, showing relationship and approximate depths of productive oil and gas zones. (Note, the portion of this section above 4700 feet is after J. B. Case, chief deputy oil and gas supervisor of California, and has been developed from actual well log data. The lower portion of the drawing, added by the author, is of doubtful accuracy, being merely interpretative of the results of early lower zone wells)

be larger in lateral extent than the Meyer.

Though development has, up to the time of writing, scarcely progressed to a point that would permit of accurate forecasts, it seems probable on the basis of reports from recently completed wells, that the two lower zones will extend over a materially smaller area than the Meyer zone. The recently discovered zones are also thinner than the Meyer. The latter averaged about 750 feet in thickness, while evidence so far available indicates that the Nordstrom is not more than 200 or 300 feet thick, while the Buckbee is variously estimated at from 200 to 500 feet. Though the initial field pressures are higher in the two lower zones than in the upper zones and the percentage recovery promises therefore to be correspondingly higher, because of their smaller expanse and thickness the two lower zones will probably have a lower total yield than the upper zones.

It is considered highly probable that deeper drilling will disclose other productive horizons below the Buckbee. The Buckbee and Nordstrom zones are generally considered to be of Lower Pliocene age, while some 2500 feet of the underlying Miocene formations have been found to be productive of oil in the Long Beach field, also situated in the Los Angeles Basin, and presumably having the same series of oil-bearing formations, (See Fig. 4). It would seem, therefore, that there is possibility of securing production in the Santa Fe Springs field to depths as great as 8000 feet or more.

Sands yielding large volumes of water to the wells are found between

(To be Concluded)

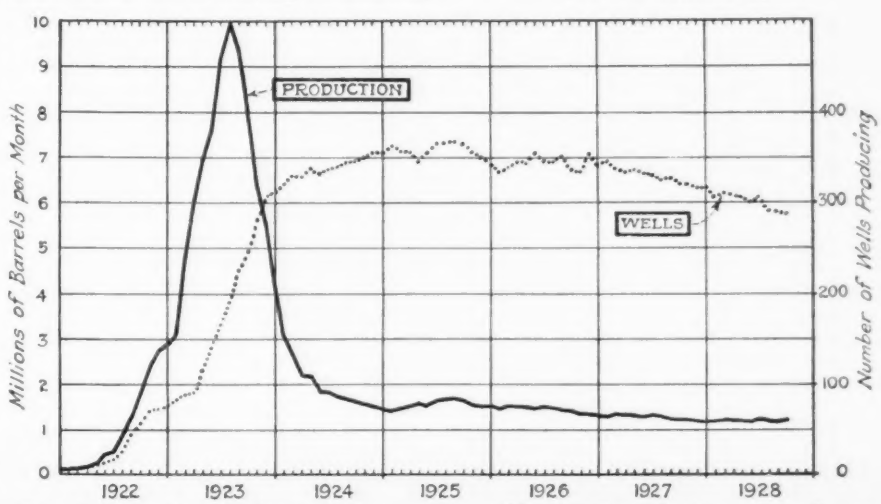


Fig. 3—Graphs showing number and monthly total production of wells in the Santa Fe Springs field, California

Jobbers' Protest Makes Auto Club Drop Substitution Survey as Unfair

By Roger B. Stafford
N. P. N. STAFF WRITER

CLEVELAND, Dec. 26

AFTER permitting to be published in two Canton (O.) newspapers a report of a survey of alleged motor oil substitution in Canton in which report it was charged 75 per cent of the Canton service stations investigated were practicing substitution, A. R. McConnell, manager of the Canton Automobile Club, announced Dec. 23 that he had withdrawn from further participation in any gasoline or motor oil investigations which might be tinged with propaganda. McConnell told NATIONAL PETROLEUM NEWS he suspected he had been duped.

The Canton "investigation" was conducted by the Motorists' Protective Bureau of New York, a representative of which was introduced to McConnell by a "Mobiloil man," McConnell told NATIONAL PETROLEUM NEWS. The American Automobile Association at Washington said the bureau was "organized by oil interests including Vacuum Oil Co. for the purpose of preventing substitution of oil."

Fred H. Caley, manager of the Cleveland Automobile Club and one of the leaders in the automobile club movement in America, said the Motorists' Protective Bureau had proposed that an investigation be made in Cleveland but he refused. The bureau's representative, Caley said, was introduced to him by a Vacuum Oil Co. man.

It was denied at the office of the Vacuum Oil Co., 61 Broadway, New York, that the bureau had any connection with Vacuum although it was admitted that Vacuum knew of the bureau which, it was said, was organized about three months ago to carry on investigations through automobile clubs of gasoline, oil and automobile accessories.

The report of the Canton "investigation" was so broad in its accusation of substitution without submitting evidence to back up its assertions that oil company officials protested to McConnell and the Canton newspapers that the "investigation" apparently was inspired by some interests that hoped to benefit by discrediting stations that did not handle a particular brand of motor oils.

Although the Motorists' Protective Bureau has been given a "certificate of purity" by the Vacuum Oil Co. and the American Automobile Association its real identity and the inspiration back of the Canton "investigation" was still shrouded in considerable mystery today. Caley said he was suspicious of anything that bore the name "protective bureau" and said the Cleveland club with the Better Business Bureau helped each year to put out of business 40 or 50 organizations which say they have been formed to protect motorists.

McConnell said he had directed his correspondence to the Motorists' Protective Bureau at 36 W. 44th St., New York, but inquiry there Dec. 24 failed to establish definitely its connection. When the name could not be found in the building directory, a NATIONAL PETROLEUM NEWS reporter was told that telegrams to the bureau were delivered to the office of R. G. D. Douglas, an attorney. At Douglas' office it was denied that any correspondence of the Motorists' Protective Bureau had come there and Douglas said he knew nothing of the bureau. Building employes said they understood the bureau was a client of Douglas.

Dec. 26 Douglas called the New York office of NATIONAL PETROLEUM NEWS and said he had been urged by Vacuum Oil Co. to talk. He said Dr. Masson of New York is the president of the bureau.

The investigation in Canton was made by two representatives of the bureau and a membership salesman of the Canton Automobile Club. According to stories given two Canton newspapers Dec. 19 by McConnell, the two protective bureau men and his salesman called at 37 of the more than 100 filling stations in Canton and asked for a national brand of oil. At 19 stations the "investigators" were told the particular brand of oil was not handled. At two stations they were able to get the oil. At 10 stations a good brand of oil was sold the investigators who intimated it was substituted for the brand asked for, but at only six stations was it alleged that substitution occurred. Yet the assertion given Canton newspapers was that 75 per cent of the stations were practicing substitution.

McConnell would not give out the list of stations visited by the alleged "investigators" so the truthfulness of the bureau in its press agent story to Canton newspapers, or the other side of the alleged "investigation" could not be checked.

A definite effort was made to mislead the Canton motoring public about the quality of motor oils sold in that city, oil men there charge, and they blame the Canton Automobile club, of which most of them are members, with being a party to an effort of one motor oil manufacturer to arouse suspicion against local brands of motor oils by unfair and unscrupulous methods.

THE Canton Automobile Club did not finance the investigation and the Canton oil men cannot convince themselves that the two "investigators" came from New York to Canton solely because of their love of the Canton motor vehicle owners. They believe the campaign was financed by the manufacturer of the national brand of motor oil which was asked for by the "investigators." The press agent story carried by the Canton newspapers did not reveal the name of this brand and McConnell said he didn't know what it was. He said the salesman who accompanied the two "investigators" was no longer with the Canton club and he didn't know where he was.

McConnell admitted he probably erred in permitting the club to be drawn into the investigation and added that he was having Dun's and Bradstreet's agencies and the Better Business Bureau investigate the Mo-

Officers of the Bureau

By Telegraph

WASHINGTON, Dec. 26.—At the office of the American Automobile Association today it was said these were the officers of the Motorists' Protective Association of New York:

President—Dr. Henry J. Masson, formerly professor of chemical engineering, New York university.

Vice-President—Percy E. Williamson, an attorney in New York.

Secretary—Frank S. Douglas, formerly chief of the department of investigation, American Fair Trade Association.

Negotiations with the A. A. A., it was said, were conducted by Mr. Obermeyer of the Vacuum Oil Co.

torists' Protective Bureau and if it were found the club had been duped that "something would be done." He wired the bureau last week when the representatives of two Independent oil companies protested the "investigation," that he would have nothing further to do with it. The bureau had scheduled several more press releases, McConnell told the oil men.

The following statement from McConnell was published in the *Canton Repository* of Dec. 23:

"Any tests of oil or gasoline made without bias and without the interest of propaganda are normally welcomed by the club, by the motoring public and by responsible service station operators. If there is the tinge of doubt, if there is a question of propaganda the club is not interested. In this instance we are not satisfied. If we have been imposed upon, as some representative service station operators indicate we have been, all the precautions we took before the investigation were of small value.

"We endeavored to identify the Motorists' Protective Bureau which appears to have its headquarters in New York. The American Automobile Association advised us that the man who came to us authorized to make the tests was satisfactory. If we have submitted to tests which have propaganda as their basis we deeply regret it.

"As long as there is reasonable doubt that these investigations are not strictly official and unbiased we do not care to cooperate in any manner. We have, consequently, advised the Motorists' Protective bureau that the club will have no more to do with such tests or reports.

"Personally I am convinced that practically all of the Canton service stations have been and are dealing fairly with the motoring public."

CANTON oil men point to the mathematics of the published articles to prove just how unfair and untruthful the investigation report was. It was asserted that 75 per cent of Canton service stations investigated were practicing substitution. The appearance of this percentage in the stories of two newspapers forestalls any attempted alibi that the reporters garbled the report. It would be miraculous if two were to make identical errors.

The oil men point to the statement that at 19 stations the "investigating" trio was told the brand of oil called for was not handled. That is more than 50 per cent of the stations called on and less than a fifth of the stations in the city.

The report for which McConnell is quoted in the *Canton Repository*, the city's leading paper, contains much propaganda like that put out two years ago by the American Fair Trade Association: the old hokum to the effect that the motor will fall to pieces unless you call for a specific brand. McConnell is quoted thus in a statement that seems to minimize the dangers the bureau seemingly hoped to establish:

"While none of the oils (those bought by the 'investigators') obtained is unsatisfactory as such, it would be highly dangerous, especially at this time of year, to make continuous use of some of them because their characteristics are not suitable to present winter conditions. We would advise motorists to definitely ascertain what weight of oil they should use in their cars and then ask for a specific brand."

ALTHOUGH McConnell is quoted as saying no oil was unsatisfactory he is quoted by the *Canton News* as saying that failure to meet the government specifications for motor oils will result in prosecutions. Search by NATIONAL PETROLEUM NEWS has failed to find any connection between the specifications for oils the United States government buys as shown in Technical Paper 323 B of the Bureau of Mines and what may be sold the public. Specifications of the samples of oil taken at Canton and which are said to have been analyzed at New York university, were not revealed to the Canton newspapers and request for them by NATIONAL PETROLEUM NEWS was refused by McConnell, who would give out nothing that would prove or disprove the fairness of the whole "investigation.

McConnell also was quoted Dec. 19 by the *Canton Repository* as follows:

"For the protection of legitimate service station and garage proprietors who, beyond question, are in the great majority, we shall continue to make further surveys in co-operation with the Motorists' Protective Bureau, Inc. Automobile use has become so general that it is fair to say that the car owners' interest is the public interest. It is not always possible to select his place to purchase oil or gasoline, and he must rely on the honesty and integrity of the service station owner. Here in Canton we have the most widely traveled highway in the state as reported by the Ohio Department of Highways and Public Works.

"One out of five Americans nowadays owns an automobile. Lubrication troubles are responsible for a large portion of repairs to motor cars. Such troubles are due frequently to the fact that the motorist, through fraud on the part of irresponsible dealers, does not receive the kind of oil best adapted to his car, even though he knows what oil he should use and orders this by name from the service station.

"Conditions revealed here convince us of the necessity for the enactment of a proper law by the state legislature to protect the motorist from fraudulent filling station operators. It is our responsibility to see that the thousands of tourists and Canton motorists are not victimized here."

McConnell told NATIONAL PETROLEUM NEWS that the quotations were taken from the bureau's press release and he did not see what the reporters were taking because he was busy directing the issue of new license plates to automobile club members. He said the club would not conduct further investigations with the bureau and that no prosecutions were contemplated.

Xmas Dinner for Newsies

TULSA, Dec. 26.—More than 400 newsboys and messenger boys of Tulsa were given a Christmas dinner and treats yesterday through the generosity of oil men and their wives. The party was given at the Tulsa club.

Arrangements for the dinner were made by Mrs. Thomas J. Hanlon, who has had charge of these dinners every year for the past 15 years. Before she married Mr. Hanlon, Sinclair Oil & Gas Co. attorney, Mrs. Hanlon was Rosella Flannigan, oil editor of the Tulsa Democrat.

Following his custom of 18 years standing, George S. Bole, Independent producer, presented each boy a crisp new dollar bill. Eighteen years ago the list of boys did not exceed 40. W. G. Skelly, president of the Skelly Oil Co., followed his custom of giving candy to each boy in the name of his daughters Joan and Jane.

The dinner itself was provided this year by Mrs. Waite Phillips.

Late Market Change

(By Telegraph)

BATON ROUGE, Dec. 26.—Standard Oil Co. of Louisiana on Dec. 18 reduced tank wagon price of kerosene at Memphis, Tenn., 2½ cents per gallon. This made the new tank wagon price at that point 12.50 cents per gallon.

WICHITA, Dec. 22.—Defective wiring caused a fire in the refinery office of the Derby Oil & Refining Corp. here the night of Dec. 18. Many of the refinery records were destroyed. Damage was estimated at $2,500. The fire was confined to one room of the building.

LOS ANGELES, Dec. 21.—Hancock Oil Co. is installing a gasoline treating unit of 7,000 barrels capacity at the Signal Hill refinery, also additional control sections and fractionating equipment. This equipment was manufactured and installed by the Southwestern Engineering Corp.

Refiners Can Supply Greatly Enlarged Home Heating Oil Market

By J. C. Chatfield
N. P. N. STAFF WRITER

Article 4

TULSA, Dec. 22

MANUFACTURERS of oil burners for home use need not hesitate in the development of their market fearing inability of the refining industry to produce low flash, low cold test oils for their burners. The burner industry and sellers of furnace oils should recognize, however, that the gasoline market will have an effect on the price which must be paid for furnace oils.

Abandonment of gravity and color requirements in the proposed uniform code of furnace oil specifications developed by the American Oil Burner Association, is a step which will aid materially in obtaining an adequate supply of oil for the future.

Thus far, buyers generally have not gotten away from gravity in making their purchases and color specifications are used in many instances. The refining industry and the burner manufacturers will find it necessary to educate the fuel oil distributors to buy on the basis of the standard specifications and sell the consumers of long standing on the satisfactory qualities of the oil to be sold.

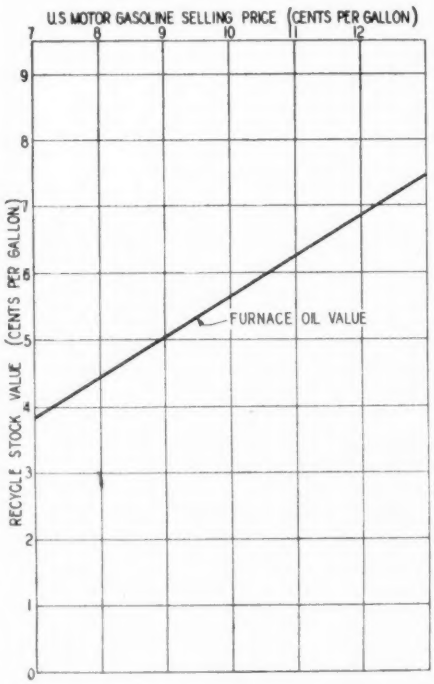
The tendency away from the prime white and straw colored distillates ranging in gravity from 36 to 41 degrees A.P.I., has been pronounced in the past two years. The trend from distillates of this class to the heavier gas oils and light fuel oils which are being produced with satisfactory flash points and cold test is shown clearly in the weekly operating reports covering Mid-Continent refinery operations as gathered by NATIONAL PETROLEUM NEWS.*

Furnace oils ranging from 36 to 41 gravity resulting from straight distillation can be produced only in limited quantities at the expense of kerosene yield and the best fraction of the cracking stock cut from the crude. In addition to robbing the crude of valuable fractions, these grades often do not flow freely at low temperatures and actually are not desirable for use in the far north.

Once gravity and color requirements are abandoned, the refiner has a new source from which to draw his furnace oils. He may turn to his cracking plants and withdraw bottoms from his pressure distillate rerun stills or recycle stock from units which produce end point gasoline direct without rerunning.

THIS article by Mr. Chatfield is the fourth in a series on domestic heating with oil, covering various phases of the subject. The three previous articles in the series were written by Roger B. Stafford.

In 1927, refineries in the United States produced 101,226,000 barrels of cracked gasoline which represented a little more than 12 per cent of the volume of crude run to stills. Assuming that the average yield of gasoline from cracking plants was 40 per cent of the charging stock consumed, it is estimated that refiners charged to their pressure stills approximately 253,000,000 barrels of reduced crude and gas oil. The yield of 40 per cent is considered a fair average since most of the most modern cracking plants will produce much more than that while the old shell still type of cracking plant with its low yields is rapidly being supplanted.



Graph of value of average grades of furnace oil when used as a recycle stock for charging pressure stills for the production of cracked gasoline

By withdrawing recycle stock from cracking plants instead of charging it back to the units mixed with virgin charging stock or permitting it to be recycled continuously within the unit as is possible with the newer type crackers, refiners could produce a volume of recycle stock equal to about 25 per cent of the raw charge to stills if the price were attractive. This oil which would be withdrawn from the stills under such an operating plan, would meet all the requirements of the first three grades of furnace oil as suggested by the American Oil Burner Association. The grades mentioned require a maximum pour point of zero F. and flash points of 165, 190 and 200 degrees, F.

On such a plan of operation the cracking plants of the country could produce a supply of furnace oil approximating 63,000,000 barrels per year, on the basis of the estimated charge to cracking stills in 1927. It should be remembered in this connection that cracking plant activity in 1927 was depressed on account of market conditions.

CURRENT estimates are that home oil burner installations of the country will consume more than 23,000,000 barrels of furnace oil this year. With a possible production from cracking alone of 63,000,000 barrels, demand can be increased to two and a half times its present size without an actual shortage. Any increases in cracking activity above the 1927 level would enlarge the possible production further. From straight distillation of crudes containing a low cold test gas oil fraction, excluding California, it is possible that an additional 10,000,000 barrels of furnace oil could be produced.

Brief mention has been made of the gasoline or cracking stock value of furnace oils. This is an important factor which should not be overlooked in studying the furnace oil market. While recycle stocks such as pressure distillate bottoms and gas oil which has been cracked once, are not so valuable as virgin gas oil, they may be reprocessed suc-

*See statistical report showing decline in distillate shipments and production, NATIONAL PETROLEUM NEWS, Aug. 1, 1928, pp. 69-70.

cessfully and produce large quantities of gasoline.

In plants which recycle the gas oil within the unit without permitting it to lose its heat there is an advantage in operating costs in recycling the oil rather than removing it to cold storage for sale as furnace oil.

The additional cracking value of virgin gas oil would suggest its use instead of recycle stock if an adequate supply of straight reduced oil might be purchased at a point where the freight rate would not be prohibitive or if the gas oil production of the plant were much in excess of the cracking plant capacity.

Unfortunately, gas oil cannot be bought to advantage from outside sources often and cracking plant capacities are working up to a point where all of the straight reduced charging stock cut is required.

It is impossible to set up an estimate of the value of furnace oil as a cracking stock based on the cost of crude oil. The value must be based on the selling price of the gasoline which could be produced. The writer has prepared the accompanying graph to show the approximate value of recycle stock which would meet furnace oil specifications for different selling prices of gasoline. The curve of furnace oil values has been based on the figures of several important Mid-Continent refiners who are equipped for cracking.

From this graph it may be observed that furnace oil on present markets is worth approximately 5.5 cents per gallon at the refinery. With freight and handling charges added this would bring the selling price of the oil today at 10.5 cents and upwards in Standard of Indiana territory.

Examination of the chart will reveal why the manufacturing departments of some important companies refuse to produce furnace oils for sale at current price levels in the vicinity of 3.25 to 3.50 cents per gallon. Some companies will make furnace oils for their regular gasoline customers even though they do not obtain as great a price as they might realize by cracking.

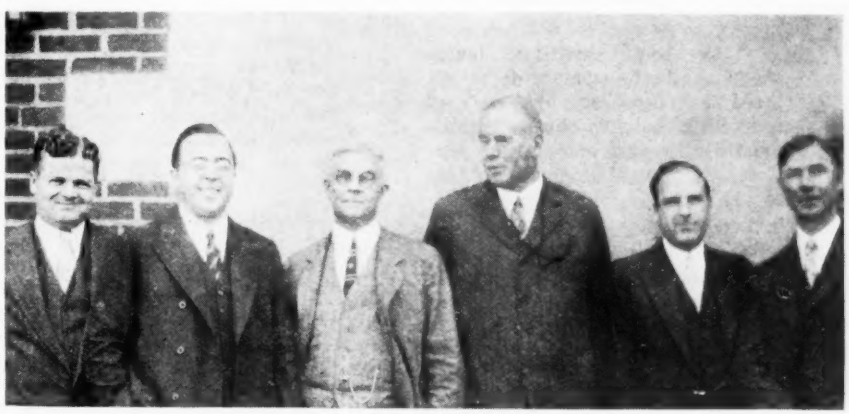
Others have their own distributing systems and feel it to be good business to take care of all the petroleum requirements of their customers. Some stove oils are produced because the refiner lacks facilities for completely cracking his overhead stocks or has a cracking plant which will not economically reduce the cracking stove to gasoline, heavy fuel or coke and gas.

When gasoline prices at the refinery fall much below 7 cents per gallon many refiners find that it is just as well to sell recycle stock for furnace oil as it is to crack it, particularly when it is difficult to market the gasoline which would be produced. There is a point on the scale downward when it is not profitable to crack gasoline. That point was reached for a time in 1927 resulting in a great lowering of the output of cracked gasoline.

As long as there is a surplus of gasoline and crude oil it is not probable that the furnace oil market will exceed and probably will not reach the values shown in the graph. Given a shortage of oil and a tight gasoline market, cracking plants undoubtedly would use all the recycle stock possible and the indicated markets would be approached.

One factor which will be operative while furnace oil consumption is as far as it is now below the maximum production capacity of the industry, is the difference in seasonal demand peaks between gasoline and furnace oil. Furnace oil demand is at its height in the winter months when gasoline demand is slack and gasoline must be stored or sold with difficulty if runs are not cut. Under such conditions some recycle stock will be sold without reprocessing in spite of its actual worth for cracking stock.

They are creating a market for furnace oils. Left to right: Haldeman Finnie, general manager, Timken-Detroit Co., Detroit; M. E. Simpson, vice-president and general manager, Electrol Distributing Corp., New York; William C. Tarnahan, president, Petroleum Heat & Power Co., New York. and Lional L. Jacobs, vice-president, Electrol, Inc., St. Louis



These men are promoting the use of oil for home heating. Left to right: Trell W. Yocum, director, Oil Heating Institute; Leod D. Becker, former director of Oil Heating Institute and editor of Fuel Oil; Edward P. Bailey, president, National Airoil Burner Co., Philadelphia; George Bullock, president, Caloroil Burner Corp., New York; E. M. Fleischmann, president, May Oil Burner Corp., Baltimore, and J. C. Johnson, president of the American Oil Burner Association and the S. T. Johnson Co., Oakland, Calif.

American Oil Buys Virginia Concern

RICHMOND, Va., Dec. 20.—Purchase of the Capitol Oil Co., Inc., Petersburg, Va., jobber and distributor of The Texas Co.'s products, by the American Oil Co., Baltimore, subsidiary of the Pan American Petroleum & Transport Co., is another step in the latter company's expansion program of its marketing facilities in eastern states. The Capitol company operated some 15 bulk stations and 20 filling stations in Wakefield, Hopewell, Boydton, Toano, Mineral, Culpepper, Warrenton and Petersburg, Va., and at White Sulphur Springs, W. Va. These stations will be operated as the Capitol Oil Co. division of the American Oil Co., and headquarters will remain in Petersburg.

This Handle Fits Mathematical Tools For Solving Absorption Problems

By E. G. Ragatz*

Presented at the Fall Meeting of the California Natural Gasoline Association, Los Angeles, Nov. 13

MR. RAGATZ has done a service for those natural gasoline engineers who have never had experience in figuring out mathematically the mechanical problems connected with fractionating equipment in gasoline absorption plants.

In this article the author explains the direct application of rules and methods of calculation that have been developed by McCable and Thiele and Lewis and McAdams, to specific problems of absorbing a specific gasoline fraction, setting up the mathematical equations and formulae necessary to make the calculations.

From the specific applications shown in this article, any engineer would be able to modify the method shown to fit a different problem of fractionation which might confront him.

Mr. Ragatz provides a handle for the kit of tools furnished by McCabe and Thiele and Lewis and McAdams.

IN THE graphical analysis of distillation relationships as outlined by McCabe & Thiele,[1] with its recent amplification in the field of countercurrent absorption systems by Lewis & MacAdams,[2] we have an analytical method which can be effectively used in solving many of the absorption and distillation problems confronting the natural gasoline industry.

As with most graphical methods, this one presents a flexibility and simplicity lacking in the analytical methods usually employed for the solution of distillation problems.

At the same time the assumptions upon which it is based are few and direct and hold to a remarkable degree in modern absorption plant practice. All in all, it is a tool which the engineers of the industry can ill afford to neglect.

This analysis, as applied to a conventional plate type absorption or distillation column, derives its effectiveness from the following experimentally determined relationships:

1. The layout of such a conventional plate type column can be developed from a theoretical unit in which the down flowing reflux comes to complete vapor pressure equilibrium with the ascending vapors on each plate.
2. The ratio of the theoretical number of plates to actual number of plates required to obtain a given result for any one general type of operation will remain substantially constant; this constant usually being referred to as the plate efficiency.

In outlining this graphical method we will first discuss the general "assumptions of state" required for its validity, and then develop the simple relationships upon which the analysis itself is based.

In Figure A we have illustrated a conventional plate type of simple stripping column for the graphical analysis of which we must make the following general operating assumptions:

1. The pressure and temperature of the vapor stream flowing through the column must be constant and uniform. This implies that the pressure gradients through the various plates are negligible, and that the latent heat of vaporization of the light fractions, together with any air losses, is compensated for by some heating device other than the stripping steam stream. These assumptions correspond closely to the conditions existing in the exhausting sections of many modern vertical steam stills.
2. The column is fed continuously with a uniform quality of material, and produces a constant quantity and uniform quality of lean bottoms and rich overhead while using a constant quantity of steam of uniform quality. These uniform conditions, ot course, are those met with in the operation of any well regulated continuous still.
3. The absorption oil is fed to the still at a temperature corresponding to the aforementioned uniform still temperature.
4. The exchange of light material between the descending liquid absorption oil and the ascending vapor stream occurs only on the column plates.

From the above assumptions it is obvious that any solute (light fraction) given up by the absorption oil must be taken up by the steam, and furthermore, that this exchange must take place at a uniform rate on each plate of the column. Then, calling the concentration of solute in the liquid X, and in the steam Y, and the quantities of absorption oil and steam handled per unit of time, respectively, O and S, we note that between any section n, and the top of the column:

The solute given up by the absorption oil per unit of time =

$$\Delta X = O\ (X_o - X_n)$$

The solute taken up by the steam per unit of time =

$$\Delta Y = S\ (Y_o - Y_n)$$

Equating the above expressions gives

$$O\ (X_o - X_n) = CS\ (Y_o - Y_n)$$

Where C = Some constant.

Now from this very simple fundamental relationship, we may draw two extremely important deductions:

1. Since this equation was derived simply by equating input against output, it expresses a perfectly general state of affairs, and may be applied to any column operating under the limitations imposed by the above outlined assumptions. Furthermore, it accurately expresses the relationship existing between the solute concentrations in the absorption oil and in the steam at any section above any plate in the column.
2. The concentration of solute in the steam, Y, is linear in X, the concentration of solute in the oil. In other words, if we plot values of Y vs. X for various sections through the column, the curve defined by these points will be a straight line.

In the analysis developed by McCabe & Thiele a graph is employed, the coordinates of which are X and Y expressed in any convenient terms. On this graph a curve is plotted from the above general equation. This curve (a straight line) is called the

1. (McCabe & Thiele, Ind. Eng. Chem. 17,605 (1925).
2. (Lewis & McAdams, Ind. Eng. Chem. 20,253 (1928).

*Union Oil Co. of California.

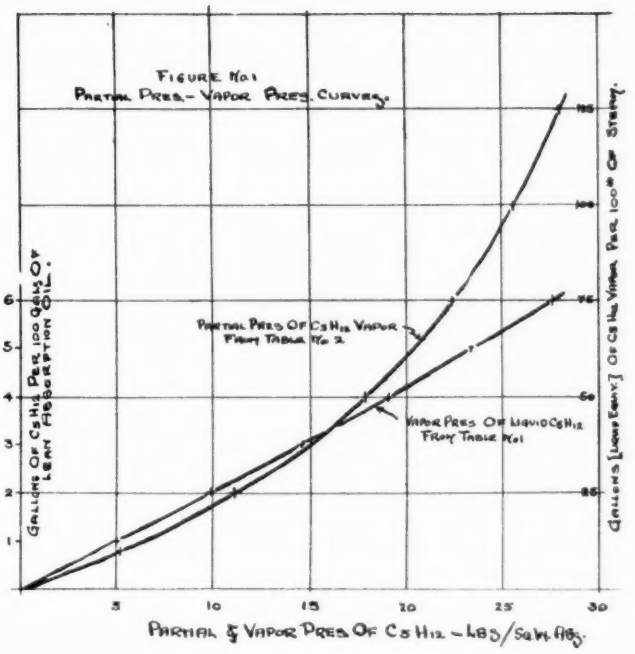


FIGURE No 1
PARTIAL PRES.- VAPOR PRES. CURVES.
GALLONS OF C_5H_{12} PER 100 GALS OF LEAN ABSORPTION OIL.
GALLONS LIQUID EQUIV. OF C_5H_{12} VAPOR PER 100# OF STEAM.
PARTIAL PRES OF C_5H_{12} VAPOR FROM TABLE No 2.
VAPOR PRES OF LIQUID C_5H_{12} FROM TABLE No 1
PARTIAL & VAPOR PRES OF C_5H_{12} - LBS/SQ. IN. ABS.

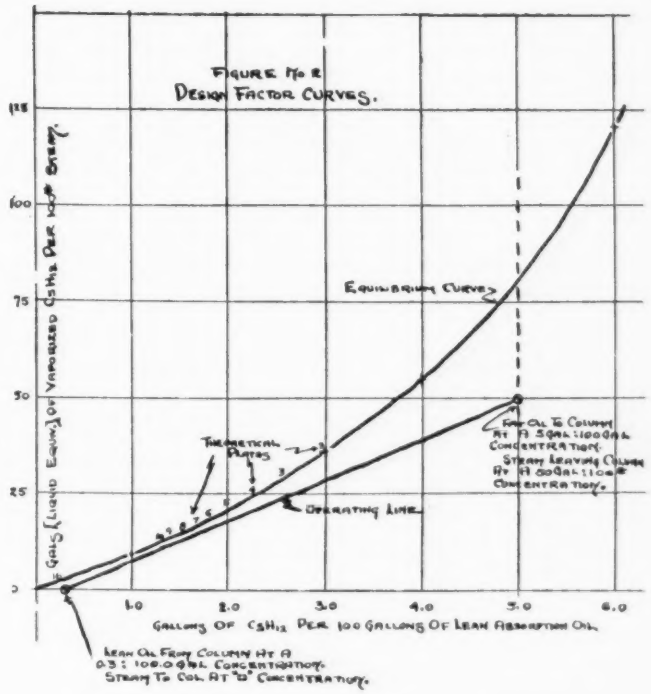


FIGURE No 2
DESIGN FACTOR CURVES.
GALS. LIQUID EQUIV. OF VAPORIZED C_5H_{12} PER 100# STEAM.
EQUILIBRIUM CURVE
THEORETICAL PLATES
OPERATING LINE
GALLONS OF C_5H_{12} PER 100 GALLONS OF LEAN ABSORPTION OIL

operating line, since it interprets the character of operation occurring within the column. In conjunction with this operating line they also utilize a second curve called the equilibrium curve.

This second curve indicates, for various solute concentrations, the simultaneous values of X and Y required to develop vapor pressure equilibrium between the solute fraction in the absorption oil and the solute in the stripping steam. A set of these curves is illustrated in Figure B.

Referring to Figure B, let us assume that the column of Figure A is to operate with a continuous feed of uniform quality X_o, which feed is to be stripped to bottoms quality of X_1, and that the equilibrium curve of Figure B represents the simultaneous solute concentrations required for the maintenance of pressure equilibrium between the liquid and vapor phases of the solute in question. Then—

1. For any value of X, such as X_o, the corresponding Y equilibrium concentration equals Y_o.
2. With the entering steam assumed to contain zero concentration of solute, the point X_1—Y_1 of the operating line is fixed.
3. Although the X value of the upper end of the operating line is fixed at X_o, its Y value has not been defined, and hence a whole series of operating lines similar to lines numbers 1 and 2 may be drawn.
4. As the slope of these operating lines increases, the operating line values of Y increase for any given value of X, thus indicating an increasing concentration ratio of solute in the steam.
5. Obviously the difference between equilibrium and operating concentrations of Y, such as Y_o—Y_o for the liquid concentration X_o and operating line No. 1, indicates the driving force which transfers the solute from the absorption oil into the stripping steam.
6. Therefore, if the operating line should touch the equilibrium curve, no driving force would be present to change the concentrations of solute at this tangent point, and the column would become inoperative in this region.
7. Furthermore, if the operating line should cut over the equilibrium curve, the differential of solute pressure would be reversed, and the solute would tend to migrate from the steam back into the absorption oil. This, of course, is an impossible condition, and hence the "slope of tangency" must be the upper limiting slope of the operating line.

With these observations in mind, let us recall the originally stated rule that the actual column design can be based on a theoretical unit in which complete pressure equilibrium is established at each plate. If that is the case, and operating line No. 1 represents the column operation, then Y_o represents the concentration of solute in the steam leaving the column, and the equilibrium value of X for Y_o is the concentration of the liquid on the top plate, this top plate concentration being indicated by $X_o + 1$.

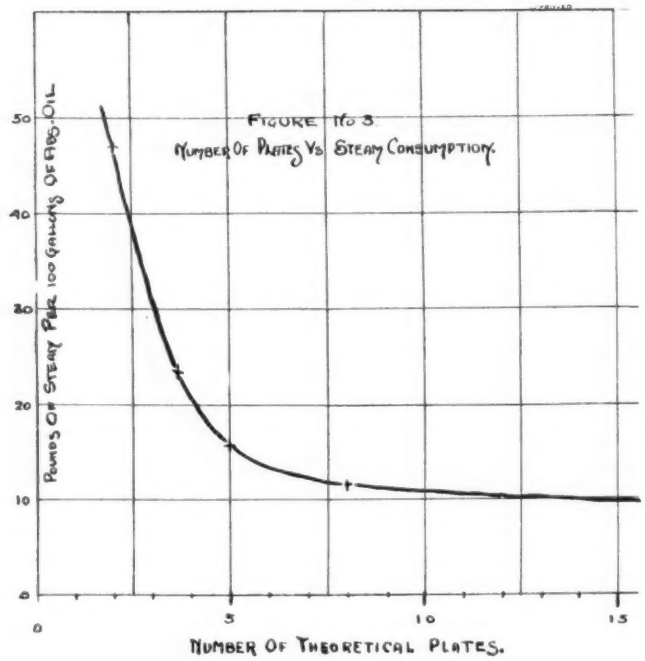
Hence we see that "top plate" conditions of equilibrium are expressed by the point M on the equilibrium curve. However, the oil from the top plate, in descending to the plate second from the top, passes through section $_o + 1$ where it must be in phase with the vapor stream as indicated by operating line No. 1.

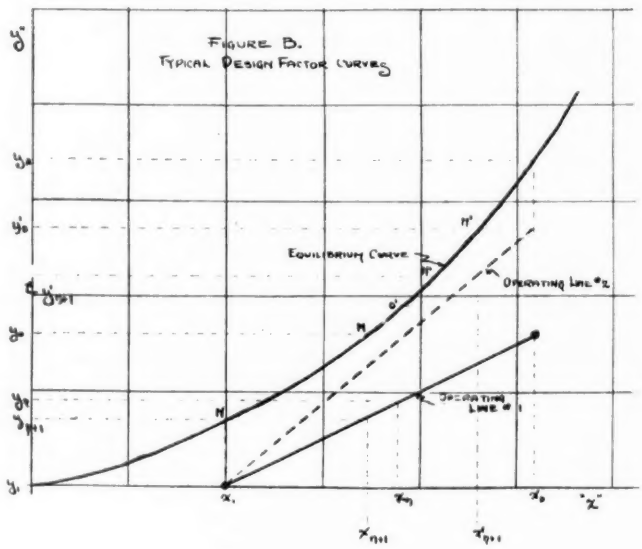
This operating line relationship then establishes the value of Y_{o+1} as the concentration of the vapor ascending from the second plate. But these vapors must, in turn, be in equilibrium with the oil on the second plate as again indicated by the equilibrium line. Hence point N represents the equilibrium status at the second plate.

Now from this development of points M and N, it should be obvious that each such point of equilibrium implies the presence of a single theoretical plate, and herein lies the solution of your simple stripping still problem—the hope of the operating line determines the exit steam concentration of solute, and hence steam consumption rate, while the step-wise construction between the operating line and the equilibrium curve indicates the number of theoretical plates required to effect the desired separation.

For the conditions of operating line No. 1 we see that we would require two theoretical plates. But by inspection we also see that line No. 2 would use less steam and require more plates than line No. 1. Now for the solution of any given still problem, we should first construct several operating lines, calculate the steam rate required for each respective number of plates used, and then plot a curve of "column size vs. steam consumption" from which to make our final decision as to the desirable theoretical column height.

Knowing the plate efficiency of the particular design of column used and its capacity per square foot of gross cross section, we can then lay down





the specifications required for the actual column construction.

In order to illustrate the foregoing general discussion we have worked out a simple problem involving the stripping of a pentane fraction from a typical 42 gravity absorption oil.

1. **Given:**
   (a) Column operating continuously at a uniform rate
   (b) Total absolute pressure on column = 45 pounds
   (c) Temperature of column uniform at 325 degrees F.
   (d) Rich absorption oil and steam fed to column at 325 degrees F.
   (e) Absorption oil:—
   40.0 degrees A. P. I.
   6.87 pounds per gallon
   175 mol weight
   (f) Light oil fraction (Pentane):—
   92.4 degrees A. P. I.
   5.27 pounds per gallon
   72 mol weight
   275 pounds vapor pressure at 325 degrees F.
   (g) Fat oil contains 5 gallons of C_5H_{12} per 100 gallons of absorption oil.
   (h) Lean oil contains 0.3 gallons of C_5H_{12} per 100 gallons of absorption oil.
2. **Required:**
   A curve showing the relationship between number of theoretical plates and steam consumption required for reducing the fat oil to a 0.3 concentration.
3. First calculate the data for the "partial pressure-vapor pressure curves" of Fig. 1.

a. Data for "vapor pressure vs. fat oil saturation" curve.

Make this curve on the basis of the variation in the vapor pressure of C_5H_{12} as its saturation varies from 1 to 6 gallons per 100 gallons of absorption oil, assuming that Raoult's law is valid.

Mols/100 gallons absorption oil = $\frac{100 \times 6.87}{175} = 3.92$

Mols/Gal. $C_5H_{12} = \frac{5.27}{72} = .0732$

Vapor pressure of various C_5H_{12} saturations X.

$$\text{V.P.} = \frac{.0732\ X}{3.92 + .0732\ X} \times 275 = \frac{20.1\ X}{3.92 + .0732\ X} \quad \text{---(1)}$$

Where X = gals. of C_5H_{12} per 100 gallons of lean absorption oil.

A SIMPLE PLATE STRIPPING COLUMN.

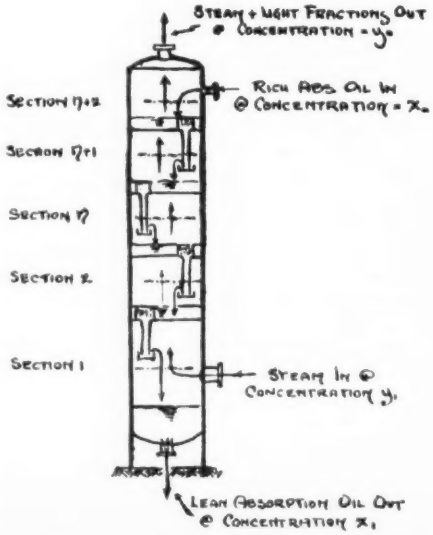

STEAM + LIGHT FRACTIONS OUT @ CONCENTRATION = y₀
RICH ABS OIL IN @ CONCENTRATION = X₀
SECTION n+2
SECTION n+1
SECTION n
SECTION 2
SECTION 1
STEAM IN @ CONCENTRATION y₁
LEAN ABSORPTION OIL OUT @ CONCENTRATION X₁

Fig. A—A simple plate stripping column

Table No. 1

X	20.1 X	.0732 X	V.P.
1.0	20.1	.073	5.0
2.0	40.2	.146	9.9
3.0	60.3	.220	14.7
4.0	80.4	.293	19.1
5.0	100.5	.366	23.4
6.0	120.6	.439	27.7

b. Data For "Partial Pressure vs. Stream Saturation" Curve.

Make this curve on a basis of the variation in the partial pressure of C_5H_{12} as the vapor concentration varies to give partial pressures of C_5H_{12} between 5 and 30 pounds per 100 pounds of steam, assuming that the perfect gas laws are valid.

Mols/100 pounds steam = $\frac{100}{18} = 5.56$

Mols/gal. $C_5H_{12} = 0.0732$

Partial pressure of various C_5H_{12} saturations Y.

$$\text{P.P.} = \frac{0.0732\ Y}{5.56 + 0.732\ Y} \times 45 = \frac{3.29\ Y}{5.56 + 0.732\ Y} \quad \text{---(2)}$$

Where Y = Gals. (Liquid equivalent) of C_5H_{12} vapors per 100 pounds steam.

Table No. 2

Y	3.29 Y	0.0732 Y	P.P.
10	32.9	.73	5.2
25	82.3	1.83	11.2
50	164.5	3.65	17.9
75	247.0	5.48	22.4
100	329.0	7.32	25.6
125	412.0	9.14	28.0

4. Draw Equilibrium Curve of Figure. 2.

From the data in tables No. 1 and No. 2 construct the curves shown on figure No. 1 and then construct the equilibrium curve on figure No. 2 by plotting equivalent points of equal C_5H_{12} pressure from Figure 1.

Note that for this simple case we could have plotted the equilibrium curve directly by equat-

ing formulas 1 and 2 and solving for Y, obtaining thereby an equation for the equilibrium curve of

$$Y = \frac{111.5\ X}{12.9 - 1.23\ X}$$

However, in more complex problems, the two pressure curves of figure 1 must be constructed for the development of the equilibrium curve, and hence they are included in this simple case as a matter of illustration.

5. **Draw Various Operating Lines and Obtain Data for Figure 3.** With the equilibrium curve drawn, and fat lean oil concentrations fixed, we can draw a series of operating lines similar to the one on Figure 2, and determine the steam rates for various numbers of trays—from these data then plot the curve of Figure 3.

   For the operating line on Figure 2:

   (a) Use 2 pounds steam/gallon C_5H_{12} in the vapors.
   (b) Remove 5.0-03 = 4.7 gals. C_5H_{12} per 100 gals. abs. oil.
   (c) Steam rate = (2 x 4.7) + 100 = .094 pounds of steam per gal. absorption oil.
   (d) Require 16 theoretical plates.

6. **Plot the curve of Figure 3.** Curve No. 3 indicates that we can use a minimum steam rate in the order of 10 pounds of steam per 100 gallons of absorption oil and still obtain the desired absorption oil leanness. Such a steam rate, however, requires the use of 14 to 16 theoretical plates. Now if we reduce the number of plates to 7 or 6, the steam rate per 100 gallons of oil will only be increased by about one pound. In other words a 50 per cent reduction in column height would increase the steam rate only 10 per cent. Obviously, the use of the shorter column would, in most cases, result in a more economical design.

Although the foregoing problem is an extremely simple one, it illustrates a method which is capable of extensive elaboration in the analysis of many rather complicated distillation operations. From our point of view, its real value lies in the possibility it presents of using data from one operation for the prediction of the layout required for an allied, though quite differently detailed, operation.

In all such cases, sufficient data must be obtained from the first operation to define the efficiency of the plates being used, and to permit of drawing the "partial pressure-vapor pressure" curves for the second operation. Once having these preliminary curves established, it is then an easy matter to develop the equilibrium curve of Figure No. 2 and complete the graphical analysis of the problem.

Injunctions Hold Up Winkler Prorating in Two Cases

HOUSTON, Dec. 20

ATTACKS on Winkler county prorating machinery resulted, Dec. 19, in temporary injunctions being granted two petitioners seeking relief from West Texas contract situations involving crude oil production from their properties.

Until the temporary injunctions are made permanent or dissolved, plaintiffs may continue crude deliveries at variance with the established order of the railroad commission for pro rata distribution of production and pipeline runs.

The temporary injunctions were in favor of the Murchison Oil Co., and Cranfill Bros., in one case, and the Murchison Oil Co., and T. P. Lee in the other. Both suits were similar in character.

As a background for the suits, it is necessary to record that the Railroad Commission of Texas, which administers the state's conservation laws, issued an order Dec. 4, notifying pipelines that they must "in no case exceed (prorating) allotments" in running oil from the Winkler field. The pipelines were also told that any failure to conform to the ruling would be deemed violation of provisions of the state permits under which they operate.

American Pipeline Co., of the J. S. Cullinan group, which had been running the Murchison-Cranfill and Murchison-Lee oil, under purchase contract, then began strict adherence to the commission order.

The pipeline company and the railroad commission were both made parties to the suits of the Murchison-Cranfill and Murchison-Lee interests, who set up pleadings of inability to fulfill sales contracts under the carrier's application of the state agency's order.

Under the prorating allotment in effect from Dec. 16-31, inclusive, the Murchison-Cranfill interests have rated potential production in Winkler county of 20,315 barrels daily and allowable production of 1412 barrels; the Murchison-Lee interests have rated potential production of 11,873 barrels daily and permitted production of 524 barrels.

Total potential of all Winkler operators for the last half of December was rated at 2,636,483 barrels in the prorating yardstick. This compares with 149,947 barrels permitted production, the allowable limit being 53 barrels short of the maximum, permitted due to disposition of fractional barrels.

Beginning Jan. 1, the railroad commission has authorized an increase in the Winkler field allowable production to 175,000 barrels daily. An order putting the increase into effect was issued Dec. 19, following hearings at Austin, Dec. 17-18, at which the request of Winkler operators was voiced.

Winkler allowable production was originally 150,000 barrels from the beginning of prorating, May 5, to June 15, when the daily maximum was raised to 175,000 barrels. On Oct. 1, the field limit was cut back to 150,000 barrels daily, remaining at that level through December.

The temporary injunctions issued in district court at Austin in favor of the Murchison-Cranfill and Murchison-Lee interests do not represent court action on attacks against Winkler prorating except insofar as conditions affect deliveries on the contract sales made to the American Petroleum Co. The decisions on hearings for permanent injunction may, however, set up legal precedents affecting future ligitation, should it arise.

Allowable production in the Roberts-Settles deep lime area of Howard-Glasscock counties has been raised from 30,000 barrels to 35,000 barrels daily, according to Umpire E. E. Andrews of Big Springs.

Total potentials listed in the umpire's report credit the Howard-Glasscock area with an aggregate of only 41,002 barrels daily, or only about 12 per cent in excess of the permitted production.

In the Yates territory of Pecos county, where field potentials are the greatest of all prorated areas in West Texas, the Dec. 16-31 prorating yardstick shows total potential of 4,403,408 barrels daily, or average potential of 2,206,500 barrels. Average potential is figured by adding together the potentials of all completions on each 100-acre unit and dividing by the number of wells on the tract.

The averaging of potential production usually cuts the figure about 50 per cent as compared with use of total potentials of all wells on 40-acre tracts, as practiced in the Winkler yardstick.

Yates field allowable production continues under a market limit of 72,500 barrels daily.

LOS ANGELES, Dec. 21.—M. L. Moore, vice-president of the Oil Well Supply Co., has returned to headquarters at Pittsburgh. After spending some time in the Mid-Continent and north Texas districts, Mr. Moore came to the California district and has spent more than a year studying California operations.

The Mid-Continent Skyline

By Lawrence E. Smith

Tulsa, Okla.

OWNERS of royalty under the Marland Production Co. discovery well brought in near Wichita, Kans., recently, are making assertions in the Wichita press that the Marland people are failing to do the right thing by them. What they want is unlimited and unrestricted production and an immediate market.

This is one of the things that is wrong with the oil business. There are several good reasons, apparent to any oil man, why the Marland company has held back this production. One is the necessity of working on the well and getting another string of pipe in it. Another is that the company must lay a pipe line to connection with other pipe lines. The royalty owners would have the company install more tankage than they presently would need, build a loading rack and ship the oil the most expensive way, by tank car.

Unfortunately, the present lease forms contain so many "implied" covenants—the courts have read in so many—that the operator frequently is at the mercy of some owner of $500 equity in the royalty and is, therefore, competent to say just how the property should be managed. There is need for thoroughgoing revision of the lease contracts now in use. The American Petroleum Institute committee appointed to do this found that the matter could best be handled by local associations. These latter should get started on it quite soon. More and more the tail of this oil business is trying to wag the dog and is partly successful in that nature defying feat.

* * *

Well intentioned, apparently, is the Mid-Continent Royalty Owners Association, organized last summer. It has applied for representation in the American Petroleum Institute and it is understood to be on the point of getting it. The association has made declarations of principles. At the organization meeting there was much indignation poured out on the heads of title-jumping lawyers, who were, of course, not present.

Among other things, the association pledges itself to promote cooperation among royalty owners and operators. If it will concentrate on this task, persuading royalty owners that the operators are perfectly qualified to manage the oil business and as the ones with most at stake can be counted on to do their best, the association will deserve membership in anything it desires, including the Young Men's Christian Association.

* * *

Born: On Dec. 10, to Mr. and Mrs. Henry L. Phillips, of Tulsa, a daughter, first child. Mr. Phillips is president of the Sinclair Crude Oil Purchasing Co.

* * *

R. F. Garland, oil man and airplane distributor, with three associates, flew to Mexico City last week in two ships. Purpose: to appoint dealers for the Garland Aircraft Corp. and the Mid-Continent Airways, Inc., both headed by Garland. Other cities in Mexico were to be visited.

* * *

Ponca City's "pioneer woman," a bronze by Sculptor Bryant Baker, under commission of E. W. Marland, attracted much attention all over the country a year ago. Now there is a companion, "pioneer man." This, also by Baker, has as its subject W. H. McFadden, long an associate of Mr. Marland, and until this year the executive vice-president of the Marland Oil Co. From the time that Mr. McFadden, 17 years ago, contributed much-needed money to an early Marland enterprise, he has been a large stockholder and, until recently, a dominant figure in the Marland companies. He made his first fortune, and name, in the steel business, rising from the lowest job in the foundry to the presidency of the McIntosh-Hemphill company. Then, broken in health and supposedly with but a short while to live, he came to Oklahoma. He is anything but an invalid now. He is an ardent sportsman and each year hunts big game in the Canadian Rockies. The bronze figure will reveal a strong and virile figure—just as he is today.

* * *

Vice-president Elect Charles Curtis owns a quarter section of land in the Kaw Indian reservation, Oklahoma. It was allotted to him, as a member of the tribe, when the reservation was divided among tribal members. Along with other tracts it was offered for lease by the agency at Pawnee last week. There were no bids on the tract of the distinguished tribesman, nor upon the tracts owned by his three children. Proving merely that nobody thinks it is oil land.

* * *

Donald H. MacIvor, former oil reporter for Wichita newspapers and lately associated with Tom C. Johnson, producer, has resigned and will open oil offices in Wichita.

* * *

It was Christmas season for some folks but it was just Dec. 25 for the Osage Indians this year. The quarterly payment on Dec 18 amounted to only $1000 apiece for the restricted Indians and $800 to the unrestricted brethren. There are about a thousand Indians of each class.

* * *

Chase E. Sutton, petroleum engineer, has been transferred from the El Dorado, Ark., district to Tulsa division offices of the Pure Oil Co. He heads the petroleum engineering staff of the division. Mr. Sutton for several years was in the Dallas office of the Bureau of Mines.

* * *

Recognizing the industry's swing to technically schooled men, Frank Rhees, of the Prairie Oil & Gas Co., has obtained a five-months' leave of absence and will return to the University of Kansas in January. He has been doing petroleum engineering work for the Prairie in the Tulsa district, chiefly on repressuring projects. It is probable that after completing certain college work at K. U., Mr. Rhees will start next fall in some outstanding school of petroleum engineering.

* * *

Tom B. Slick has finished another of his successful hunting expeditions. With a party of Tulsans, including his Tulsa office manager, E. E. Kirkpatrick, G. M. Piggott, of the Shell Petroleum Corp., J. G. Catlett and several bankers and business men, Mr. Slick went to his hunting lodge near St. Charles bay, southwest Texas. Big and little game fell before the onslaught.

* * *

Locksley R. (Roxy) Lantz, Mid-Continent production manager for the Continental Oil Co., showed his appreciation of a successful season by the University of Tulsa football boys by entertaining them at dinner at the

Tulsa Country Club. Mr. Lantz is celebrated as a sportsman as well as an oil man in all parts of the country where he has lived, and that includes many parts. His enthusiasm for sporting events is best illustrated by the fact that he once flew from Tulsa to St. Louis to see a wrestling match, which is your relator's idea of nothing to fly to St. Louis to see.

* * *

John P. Cusack has been made manager of the Skelly Oil Co.'s new land division at Roswell, N. M. This involves transfer from the Fort Worth offices.

* * *

Enid, Okla., which aspires to oil center status, and which may become that as the northwestern Oklahoma "play" warms up, is about to get started on a half-million dollar hotel. No better way to become an oil center than to provide a good hotel is our suggestion.

* * *

E. A. Richards, salesman for the Emsco Derrick & Equipment Co., goes from the Tulsa offices to the Dallas headquarters of the same company to be assistant to General Manager L. R. McCollum. The latter has made official his change of base from Houston to Dallas by getting in his car and bringing Mrs. McCollum to the new home.

* * *

Charles A. Dally, Jr., general manager of the Reserve Natural Gas Co. of Louisiana, resigned and will move to Pittsburgh as general manager of the Penn-Ohio Gas Co. W. H. Buckley, manager of pipe lines for the Arkansas Natural Gas Corp., succeeds him. Reserve and Arkansas Natural are of the same family. Mr. Dally has been with the Reserve for 14 years.

* * *

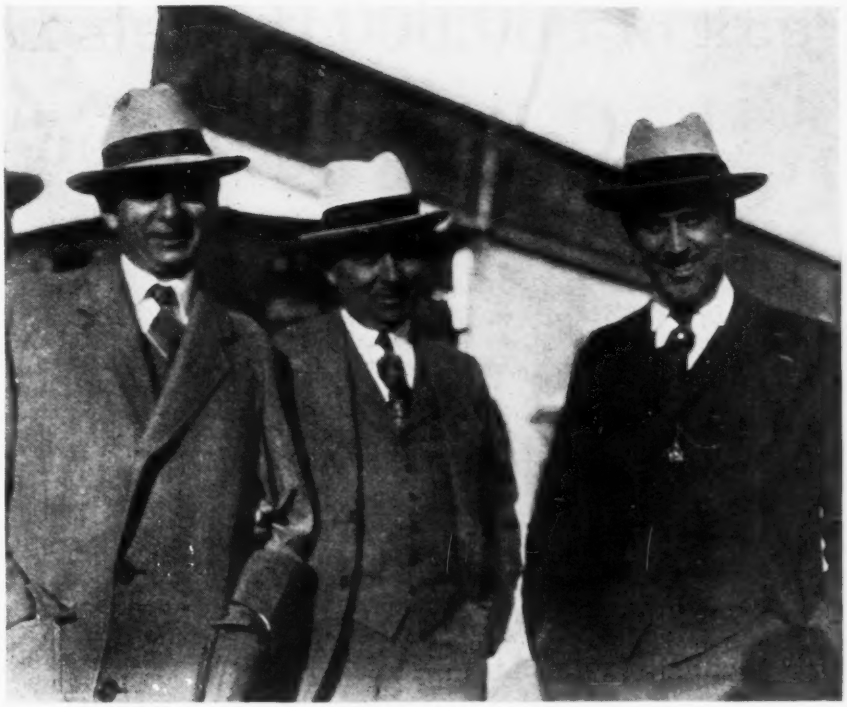
H. H. Champlin, head of the Champlin Refining Co., Enid, has purchased station KGCB at Enid, now a 100-watt station, and will ask the radio commission for authority to step it up to 5000 watts.

* * *

Funeral services for James J. Bissett, of Fort Worth, were held in Tulsa last week. Mr. Bissett was one time vice-president of the Continental Supply Co., in charge of Mid-Continent territory, and resigned to head the Mid-Continent Supply Co. in 1922. He was 38 years old.

* * *

Several oil men are interested in the proposed Yates and West Texas Railroad Co., which is to build a 30-mile line from Rankin, Tex., to the Yates pool. I. G. Yates, owner of much of the land under development in the pool, is chairman of the board; W. A. Moncrief, former vice-president of the Marland Oil Co. of Texas, is president. Murray M. Doan, Tulsa oil man, is a director, as is L. L. Leventritt, of the Savoy Oil Co. Others known in the industry who are interested in the venture are Walter W. Fleming, vice-president and general manager of the Mid-Kansas Oil & Gas Co.; John M. Lovejoy, former vice-president of the Amerada Petroleum Corp., now of W. A. Harriman & Co., New York. The line is expected to be in operation by July 1, next. It will connect with the Orient —now Sante Fe—line at Rankin.



This trio can be seen any fine day, or any cloudy one either, at lunch in the Tulsa club, where much heavy planning takes place. M. W. Bottomfield, vice president; E. D. Robinson, treasurer, and L. B. McCammon, vice president, all of the Transcontinental Oil Co.

* * *

As we complete this stint, nobody knows what William L. Walls, of Cheyenne, was up to when he put in the high bid of 42 cents per barrel above the market price, for the government's royalty oil in Salt Creek. He is a free lance attorney, once attorney general of Wyoming, and if he represents principals, he has not revealed them.

* * *

Joseph B. Umpleby, of Oklahoma City, has been nominated to be chairman of the petroleum division of the American Institute of Mining & Metallurgical Engineers for 1929. In this division, nomination is equivalent to election. Other nominations: A. C. Rubel, associate chairman; R. Van A. Mills, secretary-treasurer; W. A. Sinsheimer, vice-chairman for economics; H. C. George, vice-chairman for engineering education; Harry H. Hill, vice-chairman for engineering research; C. P. Watson, vice-chairman for production; A. D. David, vice-chairman for refinery engineering. For production engineering, C. V. Millikan is vice-chairman, with Charles E. Beecher, Glenn D. Robertson and W. W. Scott as associate vice-chairmen. These with A. W. Ambrose, John M. Lovejoy, Earl Oliver and A. W. Peake, constitute the executive committee.

* * *

Tulsans and their neighbors recognize as one of the community's landmarks the little restaurants known as Ike's Chili Parlors. Visitors from afar have come to appreciate the red-hot food which originated in Mexico. Ike —whose other name was Johnson, although comparatively few of his customers knew he had a surname— died at the age of 69 last week. He came to Tulsa in 1907 with little but a chili recipe. Tulsa tasted the dish, pronounced it good and Ike was established. Two "parlors" were soon necessary. Their locations have been changed from time to time, but there are still two. Ike specialized always on chili, serving only that, pie, coffee and near beer. His waiters sing out their orders thus: "chili," "with" and "three ways." They mean plain chili, the same with beans and with beans and spaghetti. The plainly furnished "parlors" are quite cosmopolitan. Workmen in overalls and society folk in dress clothes may be seen there at the same time late at night.

* * *

William B. Hassett, president of the Imperial Refining Co., recently purchased the Tulsa home built by the late Clint Moore, and is now living therein. It is one of the larger residences of Tulsa.

* * *

And a Happy New Year.

Peak of 800,000 Barrels Daily Expected In California Within 6 Weeks

By William E. Green
N. P. N. STAFF WRITER

LOS ANGELES, Dec. 22

CALIFORNIA is closing the year with a mounting production.

Indications are it will continue to increase for at least six weeks until a peak production of around 800,000 barrels daily is reached. The decline then should set in, and be rather abrupt.

During the week ending Dec. 19. there were 26 completions in the state with a total initial production of 44,000 barrels, probably establishing a record for the year for one week's completions.

Of the total new wells, 10 were credited to Santa Fe Springs with a well average of 2960 barrels. Long Beach furnished 4800 barrels of the new production and Elwood was credited with the same amount.

Early in week, 236 wells were drilling at Santa Fe Springs, including 13 redrilling or deepening jobs. Twenty wells in this field are due for completion in the next 10 days and many others are drilling near the top of the intermediate zone, just above the Buckbee. One of the most important completions of the week was George F. Getty's No. 18, which drilled to 6090 feet, into a water sand just below the Buckbee, and plugged back to 5938 feet for 4000 barrels of clean oil. Twenty-four wells are now producing from the deeper zone and four in the intermediate.

Much progress is being made to start drilling operations at Kettleman Hills where the Milham Exploration Co. has a well producing about 3600 barrels of 60 gravity oil from a point slightly deeper than 7100 feet. The General Petroleum Corp. last week completed a pipe line into the field and the line has been leased to Standard Oil Co., which will take the Milham production at $1.65 a barrel. No company has yet posted Kettleman Hills oil.

The companies holding larger bodies of land within what is thought to be productive area are making their locations in keeping with the plan as published exclusively in this paper two weeks ago.* The plan calls for the drilling of one well to each 20 acres and wells are to be located 330 feet from the property line, thus placing offset wells 660 feet apart.

Petroleum Securities Co., Doheny company, has either leased or purchased in fee about 3000 acres well located at Kettleman Hills and it is understood that two or three wells will be started at once. The oil sand in this field is very deep and will require holes at least 7000 feet, meaning a six months drilling job.

It has also been estimated that each hole will cost close to $200,000. Much road building is necessary and water will have to be piped to locations. The Texas Co. is completing a natural gasoline plant on the Elliott lease to run the gas, estimated at 45,000,000 cubic feet, from the Milham well.

The new well at Lawndale, just west of Rosecrans field and north of Torrance, settled to 850 barrels of 31 gravity oil this week. It drilled to 5906 feet and is producing from 176 feet of formation, most of which is said to be productive. It is making 700,000 cubic feet of gas and the oil has a gasoline content of slightly better than 30 per cent, making it a shade better crude than a similar gravity oil from Long Beach. The oil is being hauled away from the field in tank trucks by Hancock Oil Co., which has a contract calling for the production from the 80-acre tract held by the owners of the new well.

The first well was completed at Hawthorne last July and this well is now producing 115 barrels a day, flowing natural. The major companies are active closing up acreage deals and it is now indicated that within 30 days at least six wells will be drilling in the new field.

The character of the oil is encouraging as it has been held that Long Beach crude was the best oil coming from the several larger Los Angeles Basin fields. The oil from the deep zone at Rosecrans is a better oil from a gasoline content standpoint, but the wells do not hold up and are not numerous.

The acreage in the Lawndale field is held in small tracts ranging from one-quarter up to four acres. There will be practically no so-called town-lot drilling, although there will be more wells drilled than should be to the acreage.

In the Fruitvale area, which was proven for production by the Pacific Eastern Production Co. (Gulf interests) now boasts six producing wells and nine drilling wells.

Pacific Eastern's Martin 1 cemented 10-inch at 3610 feet for a successful water shut off. Early this week this well was coring oil sand and shale at 3780 feet. No. 1 Lahore is shut down. No. 1 Farrell, drilled jointly by Pacific Eastern and George F. Getty, is drilling at 3730 feet and coring oil sand in the upper zone.

*NATIONAL PETROLEUM NEWS, Dec. 12, p. 42.

New Developments Confront Repressuring Committee

Staff Special
LOS ANGELES, Dec. 22

THE committee of fifteen, representing the Santa Fe Springs operators in working out a conservation plan for that field, met in regular session Dec. 18, but since only two companies had signed agreements with reference to repressuring the Meyer zone with excess gas from the deeper sands, the meeting was adjourned until Jan. 4.

It is generally thought that some plan will be adopted to repressure the Meyer with surplus gas but there is some doubt if any agreement can be reached with reference to pinching in wells to reduce the production of gas, which would mean that a certain amount of oil would also be held back.

There is a growing feeling that the Santa Fe Springs peak of production will be about two-thirds of what had been expected. In some instances, wells are showing declines greater and faster than expected, and quite a number are showing water also.

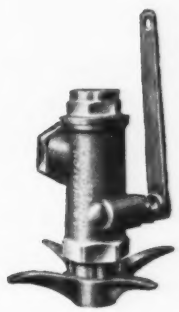
Many wells drill into a water sand just under the Buckbee, the deepest zone, and have to plug back. Several of the present producers are showing edge conditions and it is now thought that the area overlying the Buckbee will be smaller than even the Meyer, the upper zone that proved so productive over a long period.

It is rumored that an entirely new plan may be presented to the committee of fifteen at its meeting Jan. 4, conforming more accurately with conditions as they have developed. The plan under consideration the past several weeks was outlined on conditions as they were expected to be.

Tank Truck of the Pure Oil Company, equipped with four Wheaton Type A Faucets.

Anti-Freeze Valve

Single Swing Joint



Type 25 Loading Valve

Internal Valve for Storage Tanks

The PURE OIL COMPANY *has long used* WHEATON FAUCETS

MANY years ago The Pure Oil Company adopted Wheaton Faucets, Valves, Swing Joints, Couplings, Fillers, Nozzles, etc., as regular equipment.

Here is an endorsement of the highest kind—backed by purchases, money. And it represents judgment based upon years of day-in-and-day-out usage.

When so many companies use Wheaton Faucets, Valves, etc., practically to the exclusion of all other makes, it is assurance that you, too, will find them satisfactory. That's why we urge you to send for a sample of any Wheaton Product, and let your own test determine whether or not you also adopt Wheaton Faucets, Valves and other fittings as standard equipment. Write for catalog.

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FAUCETS · VALVES · JOINTS · COUPLINGS · FILLERS · NOZZLES · FITTINGS

4000-Barrel Well North of St. Louis Pool; Wilcox Sand Failure in Misener

By John Power
N. P. N. STAFF WRITER

TULSA, Dec. 22

"TWO hundred barrels an hour" has been an oft repeated phrase in Tulsa the past week.

The Indian Territory Illuminating Oil Co.-Foster Petroleum Corp. wildcat near Oklahoma City has been maintaining an average production of better than that figure.

The Independent Oil & Gas Co. No. 1 Harding, in the center of the Misener sand pool in western 8N-5E, attained a peak of 200 barrels an hour shortly after being drilled a little deeper.

The Marland Production Co. No. 1 Goodrich, its wildcat strike northeast of the Wright pool in Sedgwick county, Kans., averaged within a fraction of this amount on an 11-hour test during the past night.

Returning to Oklahoma and the St. Louis pool, the No. 1-W. Davis well of T. B. Slick, three quarters of a mile north of the discovery wells in the Wilcox, started off at a 200-b.p.h. clip after being deepened less than a foot. The actual gage from 11:15 a.m. Dec. 21 to 6 a.m. Dec. 22 showed an hourly average of 167 barrels.

Geologists and operators generally have standardized in calling the Hunton lime the producing formation in the I.T.I.O.-Foster Petroleum Corp. well near Oklahoma City. Believing at first that it was the Simpson, the action of the well, and the presence of geological evidence not usually present in the Simpson, led observers to doubt that the pay was in this section.

Drilling has been resumed through an oil saver, efforts to kill the flow with mud having been unsuccessful. The well is drilling at 6433 feet, as of the morning of Dec. 22. The formation is still lime, but it is getting harder and browner, said by some to indicate that the bottom of this formation is being reached.

The Hunton limestone has been productive in many places in the Seminole area, notably twps. 7N-5E and 7N-4E. Production is generally confined to the sandy or more porous spots, the amount of production being dependent on the degree of porosity as well as the structural position of the well.

Total recovery to date from this wildcat strike has been 59,177 barrels. It came in the afternoon of Dec. 4, has been shut in altogether at times, and has had considerable mud pumped down the hole, so that this figure, with the well still exceeding 5000 barrels a day, is an entirely creditable one.

With no completions in western 8N-5E located so as to prove or disprove any new Misener sand territory, the most important well of the week in this field is the Wilcox failure of the Amerada Petroleum Corp. No. 1 Gossland, NE SW of 8-8-5. This well was one of the early Misener sand producers of the field, having made about 800 barrels daily from this formation.

Both the Amerada and operators owning offsetting acreage were anxious to test the Wilcox in this vicinity in order that more comprehensive plans for future development might be made. The operators' agreement, which called for the shutting in of the well in the Misener, was dissolved, and the Misener sand bradenheaded and produced to capacity in order that the well might be carried on down. A good showing of oil was encountered in the top of the Simpson at 4285 feet, when the hole filled up 3500 feet with oil. Deeper drilling, however, settled the question in the negative, as the Wilcox at 4328 to 4335 feet carried a hole full of water.

Although not a new well—it was completed last week for an initial production of 1345 barrels—the Independent Oil & Gas Co. No. 1 Harding, in the SE NW of 18-8-5, perked up so much after being deepened to a new total depth of 4190 feet that it is comparing in production with many of the Wilcox sand wells in the Seminole district. A total of 21 feet of Misener sand has now been drilled. Reaching a peak of 200 barrels per hour shortly after being deepened, production gradually settled until the production for the 24-hour period ending 7 a.m. Dec. 22 amounted to 3540 barrels. Sixteen producing wells in the Misener field are now totaling a little better than 20,000 barrels per day.

OF THE Wilcox sand pools in the General Seminole area the St. Louis field continues the most active. And as has been the case in this field before, Thomas B. Slick is providing much of the action. In spite of the fact that it is offset by two dry holes in the Wilcox, one east and the other southeast, in his No. 1-W. Davis in the SW NW NE of 18-7-5, is a good producer in the Wilcox sand. It topped the sand at 4097, and at 10 feet in, was swabbing about 50 barrels an hour awaiting the erection of storage and an air lift plant. Touched up a trifle yesterday, putting the bottom at a bare 4108 feet, the well started off doing 200 barrels an hour, averaging 167 barrels hourly from the time it was deepened until this morning's gage of 3147 barrels was taken.

Three quarters of a mile north of the early Wilcox production in the field, the new well is separated from the main body of the field by a string of Wilcox dry holes, which were drilled along the south line of the NE quarter of Sec. 19-7-5. With two offsets dry, the only remaining direction which a productive area can take is to the west and northwest, as several wells drilled north of this new gusher have run considerably

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lower. It is probable that the new pay area will not cover much ground.

The St. Louis pool in general did not fare too well. The Sinclair Oil & Gas Co. No. 3 Neeley, SE NW SW of 25-7-4, had a hole full of water from the Wilcox at 4383 to 4388 feet. It is being plugged back to the Simpson, in which formation a showing which swabbed 280 barrels was encountered at 4378 feet. The same company's No. 2 Neeley, in the NE SE SW of Sec. 25, had 500 feet of oil when it topped the Simpson at 4187 feet. However, when drilled to a total depth of 4210, the hole filled with water.

Getting the air lift to working on all three wells on the Cherry lease of The Texas Co. in 25-7-4 increased the production to about 10,000 barrels, or more than the pipe line connections to the lease could handle. Some of the crude had to be cared for in earthen storage. Production maintained its average for several weeks, the total for the field, as of Dec. 21, without the new Slick well, being 92,235 barrels of Wilcox oil from 58 wells. An additional 148 wells producing from the other formations —the Hunton lime and the Simpson—added 33,219 barrels to the figure, bringing the total to 206 wells and 125,454 barrels. A comparative table of Wilcox production by leases follows.

Company	Lease	Location	Wells	Prod. Dec. 21	Prod. Dec. 14
Barnsdall	Stahl	30-7-5	3	2,265	2,237
Gypsy-Sinclair	Stahl	30-7-5	4	9,712	11,692
Phillips	Stahl	30-7-5	3	1,040	1,040
Sinclair	Blandin	24-7-4	2	2,780	3,005
Sinclair	Nadash	20-7-5	1	175	220
Magnolia	Hembree	19-7-5	4	4,497	5,064
Magnolia	C. A. Youts	20-7-5	1	650	650
Magnolia	H. E. Youts	20-7-5	5	4,472	6,248
Magnolia	T. Fyke "A"	20-7-5	1	.....	.....
Magnolia	T. Fyke "B"	20-7-5	1	3,960	3,797
Magnolia	Cherry "A"	26-7-4	1	2,461	3,661
Slick	Hembree	19-7-5	4	13,950	13,700
Slick	Youts	19-7-5	2	990	1,653
Slick	Davis	18-7-5	1	687	.....
Mid-Continent	Guinn	20-7-5	1	.....	625
Pure	Thomas	26-7-4	3	6,385	7,375
Independent	Youts	19-7-5	8	21,540	21,310
Prairie	Wolfe	20-7-5	4	3,710	3,710
Shell	Smith	21-7-5	1	355	554
Shaffer	Cherry	23-7-4	2	2,691	2,397
Texas Co.	Cherry	25-7-4	3	9,915	4,920
			58	92,235	93,137

As though resenting the attention paid the recent wildcat strikes in Oklahoma and Kansas, the Roxana pool, in Twp. 19N-4W, Logan county, Okla., turned in more news during the week than it has for some months. The No. 3 Shaffer of Twin State Oil Co. et al., in the SW NW of 20-19-4W, showed for a well last week. Drilled to a total depth of 6104 feet it made a peak of 100 barrels an hour, and then declined to an average of 85 to 90 barrels hourly. Top of the sand is given as 6066 feet.

In the same field the Shell Petroleum Corp. has two wells which are almost ready to go on the productive list. The first is that company's No. 4 Sebraneck, in the SW SE NE of 30-19N-4W, which had the top of the sand at an even 6000 feet. It is making 25 barrels an hour while drilling ahead in the sand at 6016. The same company's No. 4 McCully, SE NW SE of 30-19-4W, is making 20 barrels per hour while drilling at 5992 feet. Sand was topped at 5930. Little new ground is proved by these wells.

About five miles south and 15 miles east of this pool, the wildcat being drilled by Tibbets and Bond et al. is showing water in what the operators believe to be the Wilcox. Located in the SW NW SE of 21-18N-2W, the test had the sand at 6002 to 6022 feet.

RETURNING to the Seminole area again, considerable work is under way both on the edges of the Earlsboro field, and in the Wilcox sand region in central 8N-5E, between the Misener sand play in the western part of the township and the Mission pool in the northeastern. Northwest of the Earlsboro field, in the NW SE of 31-10-5, W. B. Joyce et al. have 1000 feet of oil in the hole in the top of the Hunton at 4445 feet and drilled to 4450. The hole is to be reduced at 4450, and the formation tested.

Northeast of the same field, in the vicinity of the Earlsboro extension provided by the Skelly well and others some time ago, the Independent Oil & Gas Co. is moving in a rig for its No. 1 Alexander, in the SE SW SW of 31-10N-6E. In the same area Skelly Oil Co. No. 1 Lottie, in the SW NW NW of 6-9-6 is showing for a good well in the Wilcox. It swabbed and flowed 706 barrels in 12 hours from the sand topped at 4395 feet and penetrated to 4414. Southeast of the extension which the Magnolia Petroleum Co. drilled to the same pool in the NW NE SW of 13-9-5, the Magnolia has another test showing for a well in its No. 1 Moore, in the NW NE SE of 24-9-5. It topped the Hunton at 3997 feet and has a hole full of oil from a total depth of 4050 feet. Five-inch casing is being run.

Lack of adequate storage and pipe line facilities has prevented the continued production of the Marland Production Co. No. 1 Goodrich, the big wildcat completed by that company in the SW NE SW of 16-25S-1E, Sedgwick county, Kans. When opened up yesterday for 11 hours it made 2183 barrels, and will probably be given a full day's test, after which time it will again be shut in. The original pool of Sedgwick county, the Wright, about six miles southwest of the Marland well added the No. 1 Lantz to its list during the week. Passing out of the Mississippi lime at 3267 feet, the well had the sand at 3363 to 3367 feet. Estimated as good for about 800 barrels, it is a south offset to the discovery well.

Notes on the Week

Four locations have been staked by the Barnsdall Oil Co. in the vicinity of the Empire Oil & Refining Co. No. 1 Cluck, in SW NE of 11-8-5, and the Sinclair Oil & Gas Co. discovery well in the district. All are on the Barnsdall's Coker lease.

* * *

Sinclair Oil & Gas Co. No. 1 Davis in the NW NE SW of 7-6N-8E, Hughes county, Okla., is showing for a well in the Wapanucka sand, a producing horizon of lower Pennsylvanian age. The top of the sand was had at 2915 feet, with 2000 feet of water in the hole between 3120 and 3180. When drilled to 3145 feet the hole filled with oil, and made several small flows. Estimated as good for at least 200 barrels daily, 6-inch casing is being run to shut off the water and test the well thoroughly.

* * *

The Marland Production Co. No. 1 Harris, SE SW of 4-7N-7E, had the top of the Wilcox at 4498 feet, with a show of oil. Six-inch casing is being run.

* * *

Monday before Christmas will be observed as a holiday by many employes of Mid-Continent oil companies, or was observed as a holiday, by the time this will appear in print. The writer hopes to so observe part of it, and if any one gets a big well and he has to work to cover it, your correspondent hopes the title is bad, and that the owner is sued aplenty. Merry Christmas, and a cooperative New Year.

Fewer Oil Industry Workers Hurt During Past Year

Staff Special
TULSA, Dec. 24

ACCIDENTAL injuries to oil industry workers have been reduced from an average of 44 per million hours of work in 1926 to 36.25 per million hours of work in the first 11 months of this year, according to a report by Don J. Wallace, director of the Safety Division of the Mid-Continent Oil and Gas Association. The reduction of nearly eight accidents per million hours of work means a saving of an immense amount of suffering on the part of workers and expense to employers.

The association report for 11 months covers the experience of a large number of companies employing men who worked a total of 34,555,000 hours. There were 1256 accidents reported, resulting in lost time totaling 19,617 days.

In the classification of accidents by causes, the report shows that inattention on the part of workers caused 447 cases or 35.59 per cent of the total. Three men were killed and four partially disabled permanently through inattention to the job. Inattention caused more accidents than any other single cause.

A second important cause of accidents is that of lack of proper inspection and maintenance of equipment. In the past 11 months 27 accidents, including one death and one partial disability for life, resulted from this cause. This classification also shows a substantial reduction from previous years.

Fewer accidents resulted from the failure of employers to furnish safety devices than from any other cause. Only eight occurred among reporting companies in the 11 month period. The eight constituted only 0.64 per cent of the total. Two men were partially disabled permanently through lack of safety devices.

Failure of employes to use safety devices furnished them resulted in 33 injuries, including one death. Four times as many men were injured because they failed to use safety devices as were injured because devices were not provided.

Carelessness of other workers caused 89 injuries or 7.08 per cent of the total. Lack of proper instruction and faulty supervision by foremen caused 60 accidents or 4.78 per cent of the total. There were 125 accidents, including four deaths and three partial permanent disabilities resulting from failure of employes to observe instructions given them. This classification accounted for 9.95 per cent of the total accidents reported.

Infections resulting from failure of employes to care for minor wounds and scratches caused 63 lost time accidents. Miscellaneous accidents resulting from factors within the control of the employe totaled 157, including one death and accounted for 12.5 per cent of the total.

Accidents which were beyond the control of employer or employe, such as weather conditions or failure of equipment, caused 247 accidents or 19.66 per cent of the total.

Classified by contributing causes, the 1256 accidents were shown as follows: Stepping on sharp objects, 72; use of hand tools, 168; use of machine tools, 38; handling material, 287; struck by object not being handled, 89; flying particles of substance from tools being used, 53; falls, 113; hot objects, 28; chemicals, 11; explosions, 56; machinery, 89; other equipment, 63; vehicles, 56; asphyxiation, 10, and others, 123.

The Mid-Continent association's poster service was increased from 20,800 in 1927 to 53,000 in 1928, and a monthly accidents bulletin was published. Safety motion pictures were shown to 58,185, as compared with 26,027 in 1927. Foremen's meetings were attended by 12,150, as compared with 5948 last year.

The industry's accident frequency rate of 36.35 per million hours worked compares with 76.98 for the mining industry, 30.04 for public utilities, 65.07 for general construction, 49.92 for steel fabricators, 25.59 for metal industries, 26.18 for steel plants, and 58.99 for gray iron foundries.

Magnolia Pipe Line Runs For Oct. - Nov.

HOUSTON, Dec. 22.—Magnolia Petroleum Company, pipeline department, announces from Dallas headquarters the following crude oil runs for November, which are shown in comparison with October:

	October	November
Hewitt-Graham	150,789.10	142,435.53
Headleton	240,131.53	211,991.92
Cushing	123,891.01	112,302.40
Yale	48,968.19	44,859.09
Duncan	43,442.23	40,048.22
Augusta	37,810.46	34,867.45
Walters-Beaver Creek	8,526 21	9,247.82
Burbank	88.73	84.44
Wewoka	1,294,649.18	1,193,481.21
Seminole	129,662.29	120,919.69
Total, Okla.-Kans...	2,077,958.93	1,190,237.77
Archer	28,897.82	27,591.34
Burkburnett	70,186.53	66,800.05
Comanche	18,165.00	17,612.23
Electro	101,189.71	95,953.88
Corsicana, heavy	9.618.90	8,457.50
Corsicana, light	23,031.20	2,926.79
Henrietta	2,355.85	2,204.90
Howard County	29,752.06	27,525.59
Luling	350,275.54	331,183.62
Lytton Springs	45,252 27	43,267.99
Mexia-Wortham	24,617.04	23,954.59
Mirando	271,060.99	246,669.29
Olden	9,909.38	9,366.39
Panhandle	99,012.32	82,608.91
Panola	1,283.21	660.80
Stephens	8,646.23	8,227.59
Thrall	984.11	990.68
Gulf Coast	847.92	428.77
Crane-Upton	343,558.95	308,830.15
Glasscock	158,809.48	130,043.70
Winkler	103,009.91	171,036.02
Total, Texas	1,700,464.42	1,606,340.78
Hoynesville	2,256.95	3,495.58
Bull Bayou	42,506.06	38,385.00
Cotton Valley	29,218 30	23,612.76
Pine Island	29,372.67	31,442.22
Hackberry	56,097.21	90,880.47
Total, Louisiana	159,451.19	187,815.83
El Dorado, light	13,336.79	11,300.33
East El Dorado	3,789.59	3,225.47
Smackover	79,090.60	79,428.24
Rainbow	77,690.48	50,147.99
Total, Arkansas	173,907.46	144,102.03
Grand total	4,111,782.00	3,848,496.41

OKLAHOMA-KANSAS

	Report for November	Dly. Avg.
Runs	2,120,315	70,772
Shipments	1,995,306	66,510
Total stock	9,265,632	.....

TEXAS

Wichita, Wilbarger, Archer		
Runs	190,840	6,361
Shipments	215,660	7,188
Petrolia		
Runs	2 205	74
Shipments	2,205	74
Eastland, Stephens		
Runs	35,206	1,174
Shipments	.....	.....

Total stock, North Central Texas Field, 246,763

Seminole Production by Companies and Leases, December 19 and December 12, 1928

LITTLE RIVER

Company	Farm	S.T.R.	Dec. 19 Wells	Dec. 19 Prod.	Dec. 12th Wells	Dec. 12th Prod.
Amerada	Nitey	2- 7-6	3	410	3	410
Amer-Wilcox	Fore	35- 8-6	2	255	2	255
Total Amerada.			5	665	5	665
Barnsdall	Cotcha	23- 7-6	2	835	1	855
Barnsdall	Hotulke	22- 7-6	3	363	3	243
Barnsdall	Walker	4- 7-6	1	479	1	565
Total Barnsdall.			6	1,677	5	1,663
Blackwell	Baker	35- 8-6	4	985	4	1,040
Blackwell	Nitey	35- 8-6	6	1,255	6	1,160
Blackwell	Talley	14- 7-6	4	1,300	4	945
Total Blackwell.			14	3,540	14	3,145
Bryan-Emery	Walker	4- 7-6	1	13	1	13
Carter	Cotcha M	23- 7-6	3	75	3	190
Carter	Cudjo L	23- 7-6	2	45	2	205
Carter	Fish	36- 8-6	4	350	4	415
Carter	Harjo C	11- 7-6	3	4,540	3	4,750
Carter	Harjo M	13- 7-6	2	700	2	720
Carter	Jackson	11- 7-6	4	1,170	4	1,255

(Continued on Page 45)

Seminole Production by Companies and Leases, December 19 and December 12, 1928

(Continued from Page 44)

Company	Farm	S.T.R.	Dec. 19 Wells	Dec. 19 Prod.	Dec. 12th Wells	Dec. 12th Prod.
Carter	Larney	24- 7-6	4	1,730	3	1,420
Carter	Lena	10- 7-6	1	622	1	620
Carter	Moore	11- 7-6	2	380	2	410
Carter	Tewee	14- 7-6	6	2,730	6	2,570
Carter	Thomas	11- 7-6	1	240	1	317
Carter	Wilson	12- 7-6	2	440	2	457
Total Carter			35	13,022	34	13,348
Champlin	Tewee	14- 7-6	2	1,382	2	1,567
Continental	Cosar	36- 8-6	7	1,810	7	1,715
Continental	Cosar M	25- 8-6	2	352	1	390
Cont. & Fisher	Milsey	11- 7-6	1	845	2	810
Total Continental			10	3,007	10	2,915
Empire	Charty	24- 7-6	1	153	1	150
Empire	Coker	13- 7-6	1	767	1	907
Empire	Sandlin	3- 7-6	1	7	1	7
Total Empire			3	927	3	1,064
Gypsy	Brown	33- 8-6	2	407	2	405
Gypsy	Brown M	33- 8-6	1	1,065	1	1,087
Gypsy	Campbell	33- 7-6	2	30	2	32
Gypsy	Conard	22- 7-6	2	580	2	665
Gypsy	Cosar	25- 8-6	1	0	1	0
Gypsy	Cosar W	36- 8-6	2	172	2	120
Gypsy	Cotcha	23- 7-6	7	2,475	6	1,795
Gypsy	Denmark	11- 7-6	4	1,820	4	1,710
Gypsy	Hulhoke	14- 7-6	10	2,602	10	2,825
Gypsy	Mungee	1- 7-6	1	12	1	2
Gypsy	Payne	5- 7-7	1	30	1	0
Gypsy	Pottie	35- 8-6	4	815	4	1,057
Gypsy	Renton	11- 7-6	3	120	3	400
Total Gypsy			39	10,128	39	10,098
Independent	Davis R	13- 7-6	3	1,590	3	1,610
Independent	Tewee	14- 7-6	6	2,599	6	2,757
Independent	Williams	15- 7-6	1	475	1	375
Independent & Highway	Harris	23- 7-6	8	1,718	8	1,893
Independent & White E	Davis	2- 7-6	4	505	4	510
Total Independent			22	6,887	22	7,145
I. T. I. O.	Campbell	1- 7-6	1	128	1	128
I. T. I. O.	Dungan	35- 8-6	3	693	3	888
I. T. I. O.	House MA	1- 7-6	1	31	1	31
I. T. I. O.	House WE	1- 7-6	1	57	1	21
I. T. I. O.	House B	2- 7-6	4	435	4	452
I. T. I. O.	Hull	26- 8-6	3	414	3	463
I. T. I. O.	Jackson	1- 7-6	3	532	3	603
I. T. I. O.	McCulla	1- 7-6	3	241	3	279
I. T. I. O.	Nitey	2- 7-6	6	307	6	129
I. T. I. O.	Phoebe A	36- 8-6	2	119	2	129
I. T. I. O.	Phoebe B	36- 8-6	3	113	3	118
I. T. I. O.	Reed	1- 7-6	1	21	1	41
I. T. I. O.	Soketheche	1- 7-6	3	689	3	608
Total I. T. I. O.			34	3,770	34	3,968
Magnolia	Cruse	2- 7-6	4	300	4	516
Magnolia	Denby	11- 7-6	4	768	4	1,288
Magnolia	Dixon	31- 8-7	1	1	1	3
Magnolia	Harjo A	14- 7-6	2	180	2	120
Magnolia	Harjo B	14- 7-6	2	480	2	528
Magnolia	Pottie	35- 8-6	4	400	4	400
Magnolia	Reed E	31- 8-7	1	28	1	28
Magnolia	Reed I	22- 7-6	3	656	3	688
Total Magnolia			21	2,813	21	3,571
McCulloch-Sands	Harrison	4- 7-6	1	13	1	29
Mid-Continent	Brunner	11- 7-6	4	815	3	950
Mid-Continent	Eleck	23- 7-6	1	180	1	210
Mid-Continent	Smith	5- 7-7	2	3,600	2	3,690
Mid-Continent	Wadsworth	36- 8-6	7	340	7	320
Total Mid-Continent			14	4,948	14	5,170
W. B. Pine	Hoyecha	26- 8-6	6	2,101	6	2,315
Pine-Phillips	Pottie	35- 8-6	2	317	2	340
Total Pine			8	2,418	8	2,663
Prairie	Chilcoat	25- 8-6	3	0	3	505
Prairie	Dungan	35- 8-6	1	30	1	25
Prairie	Gibson	14- 7-6	5	1,690	5	1,820
Prairie	Harris	14- 7-6	4	1,235	4	1,225
Prairie	House	2- 7-6	4	240	4	265
Prairie	Lustey	5- 7-7	1	105	1	0
Prairie	Moppin	24- 7-6	1	300	1	310
Prairie	Talley	14- 7-6	4	950	4	1,305
Prairie & Amerada	Sunny	14- 7-6	8	4,105	8	4,320
Total Prairie			31	8,655	31	9,775
Pure	Brinson	24- 7-6	1	1,209	1	1,002
Pure	Cotcha	14- 7-6	9	2,978	9	3,229
Pure	Harjo	11- 7-6	4	651	4	740
Pure	Hollins	11- 7-6	1	404	1	453
Total Pure			15	5,242	15	5,423
Reiter-Foster	Bunyard	14- 7-6	4	1,825	4	1,960
Roxana	Caesar	11- 7-6	1	0	1	0
Roxana	Hotulke	23- 7-6	4	970	2	1,201
Roxana	Jeffries	32- 8-7	1	47	0	0
Roxana	Johnson	13- 7-6	2	2,583	2	2,741
Total Roxana			10	3,600	9	3,942
Shaffer	Narcome	36- 8-6	2	150	3	177
Sinclair	Cosar	30- 8-6	3	495	3	595
Sinclair	Haney	12- 7-6	1	100	1	105
Sinclair	Tewee	14- 7-6	1	1,385	1	1,410
Sinclair & Kingwood	Pompey	24- 7-6	1	0	1	130
Total Sinclair			8	1,980	8	2,240
Skelly	Carl	14- 7-6	1	1,188	2	1,293
Slick	Reed	13- 7-6	1	2,230	1	635
Slick	Williams	15- 7-6	2	185	2	380
Slick	Wood	26- 7-6	1	320	1	350
Slick et al	Coker	1- 7-6	1	780	1	822
Total Slick			5	3,515	5	2,187
Snowden et al	Tiger	13- 7-6	3	1,215	3	1,180
Superior	Potulka	31- 8-6	1	5	1	5
Superior	Soketheche	1- 7-6	1	5	1	5
Total Superior			2	10	2	10
Texas	Brooks	25- 8-6	1	40	1	18
Texas	Coker	1- 7-6	3	450	3	400
Texas	Janey	11- 7-6	3	630	3	635
Texas & Indep.	Hotulke	23- 7-6	4	1,480	4	1,570
Texas & Indep.	Hotulke H	22- 7-6	1	585	0	0
Total Texas			12	0	11	2,623
Tidal	House	1- 7-6	2	415	2	430
Tidal	Johnson	1- 7-6	1	20	1	25
Total Tidal			3	435	3	455
Twin State	Lowe	25- 8-6	1	135	1	135
Wigdon-Long	Jefferson	31- 7-6	1	35	1	35
TOTAL LITTLE RIVER			313	86,299	309	88,478
MAUD						
Amerada	Gossland	8- 8-5	1	555	1	0
Amerada	Hallum	1- 8-4	1	2,855	1	0
Barnsdall	Fife	14- 8-5	1	1,325	1	1,025
Empire	Cluck	11- 8-5	1	0	1	1,334
Gypsy	Bourassa	7- 8-5	1	0	1	0
Indep.	Harding	18- 8-5	1	1,735	1	1,395
I. T. I. O.	Simpson	10- 8-5	1	49	1	54
I. T. I. O.	State	16- 8-5	1	0	1	0
Prairie	Campbell	18- 8-5	1	95	1	110
Pure	Lindley	18- 8-5	3	5,863	1	3,608
Sinclair	Bellars	19- 8-5	2	3,800	1	1,840
Sinclair	Harjo	11- 8-5	1	732	1	1,516
Total Maud			15	17,017	13	14,522
MISSION						
Carter	Fuswa	18- 8-6	1	50	1	0
Carter	Micco	8- 8-6	1	0	1	0
Gypsy	Baby	6- 8-6	1	0	1	0
Gypsy	Barkus	6- 8-6	1	5	1	0
Gypsy	Dosar	7- 8-5	1	540	1	572
Gypsy	Mission	5- 8-5	1	0	1	0
Gypsy	Mosar	1- 8-5	1	0	1	0
Marland	Maines	7- 8-6	1	75	1	70
Mid-Kans	Moore	7- 8-6	1	75	1	70
Roxana	Maines	7- 8-6	1	0	1	0
Rox-Marland	Hernsdon	7- 8-6	1	0	1	0
Slick	Tiger	13- 8-5	1	0	1	0
Twin State	Hayes	8- 8-6	1	50	1	50
TOTAL MISSION			12	795	12	762
SUMMARY						
TOTAL MISSION			**12**	**795**	**12**	**762**
TOTAL LITTLE RIVER			**313**	**86,299**	**309**	**88,478**
TOTAL MAUD			**15**	**17,019**	**13**	**14,522**
TOTAL BOWLEGS			**313**	**46,175**	**312**	**46,427**
TOTAL EARLSBORO			**291**	**73,693**	**290**	**76,078**
TOTAL SEMINOLE			**282**	**41,750**	**282**	**50,746**
TOTAL SEARIGHT			**69**	**9,892**	**67**	**10,040**
GRAND TOTAL			**1,293**	**275,623**	**1,285**	**277,053**
Avg. per well				**213**		**216**

Completions in California, Week Ended December 15, 1928

Company	Well No.	Location	Depth	Init. Prod.
Long Beach				
Dollar Oil	Hoover 1	....	6158	63
Petroleum Explin	Prudential 1	....	6260	500
Richfield Oil	Malcolm-Davis 3	....	7346	720
Univ. Cons.	Dell 3	....	6880	750
Santa Fe Springs				
Associated	Green 3	....	5780	4253
Associated	Jordan 3	....	5780	3766
General Pet	Santa Fe 168 C	....	5650	2800
General Pet	Hill Midway 2	....	5703	3800
General Pet	Santa Fe 189 C	....	5799	1000
Getty, Geo. F.	No. 22	....	5650	6220
Graham Loftus	No. 1	....	5385	3500
Shell	G. H. N. 14	....	5790	2450
Texas	Matern No. 3-11	....	5756	760
Twin Bell	Gros 4	....	5493	3000
Potrero				
Associated	Cypress 3	....	4650	1100
Seal Beach				
Standard	San Gabriel 17	....	4972	1200
Hawthorne				
Smith-Petroleum	Smith-Berry 1	....	5888	1100
Ventura Avenue				
Associated	V. L. & W. No. 5	....	7082	1070
Elwood				
Barnsdall-Rio Grande	Bell 3	....	3317	4800
Kern Front				
Associated	No. 44	23-28-27	2226	275
The Texas Co.	Midlands 10	14-28-27	2027	201
The Texas Co.	Midlands 12	14-28-27	2025	200
Mt. Poso Creek				
Bruce Frame	Dominion 2	....	1596	175
Round Mountain				
Shell	Jewett 4	29-28-29	1746	370

Completions in Oklahoma and Kansas, Week Ended December 22, 1928

OKLAHOMA

Carter County

Company	Well No.	Location	Depth	Init. Prod.
Texas	1	SW SW SW 24-1-3 W	2331-2342	120
Gypsy	4	NWc NE SE 29-2-3 W	2504-2547	21M
Sturm	1	SWc NE SW 35-3-2 W	876-959	17

Creek County

Sunray	1	SWc NW SW 35-16-10 E	3020-3111	300
Shaffer	1	NW NE SE 1-14-9 E	T.D. 3489	Dry
Thornton	1	CNL NW NW 2-18-11 E	T.D. 2470	Dry
Tibbens	10	NEc NW 9-18-12 E	T.D. 2262	Dry

Hughes County

Pure	1	NEc SW 18-8-9 E	T.D. 4500	Dry
Bauer et al	1	NW SW NE 1-8-10 E	T.D. 4255	Dry
Jarvis-Holmes	2	SW SE NW 21-7-8 E	3055-3155	70

Jefferson County

Bridwell et al	1	NE NW SE 25-6-6 W	T.D. 2172	Dry

Kay County

Shaffer	1	C SE SW 18-29-1 E	T.D. 3520	Dry
Harold	2	SWc 4-27-1 W	T.D. 3640	OWD Dry

Logan County

Crosbie et al	1	NWc 20-19-4 W	6092-6125	2245

Muskogee County

Mussellem	1	SEc SW SE NE 4-13-19 E	1344-1479	10
Allred et al	1	NWc SE SW 4-13-16 E	T.D. 1962	Dry

Okfuskee County

Umburn	1	C SW SW 35-11-11 E	T.D. 2550	Dry

Okmulgee County

Gentry et al	2	NEc SW 20-13-14 E	T.D. 2684	Dry
Becker et al	1	NEc NW SW 6-14-13 E	T.D. 2175	Dry
Speary Bros.-Mills	9	CWL NW SW 7-14-13 E	T.D. 2170	Dry
Irion Mountain	1	NW SE SW 8-15-12 E	2209-2228	7M
Hyer	1	NEc SE SE 17-15-14 E	804-831	12

Osage County

Moore Est	20	SE SW SW 9-21-9 E	250-270	20
Moore Est	19	NEc SW NW SW 9-21-9 E	298-318	5
O. T. I. O	29	SEc 17-25-12 E	2066-2068 OWD	1.5 M

Pawnee County

Superior et al	1	CEL SW SW 28-20-9 E	T.D. 1588	Dry

Pontotoc County

Homaokla	9	SW NE NE 4-4-8 E	T.D. 1720	Dry
Portland Cement	1	C E½ W½ 24-4-7 E	1276-1280	12M
Superior	2	NWc 32-5-5 E	2528-2545	180

Pottawatomie County

Magnolia	4	SEc NE 14-7-4 E	4143-4212	20
Sinclair	1	CNL NE 26-7-4 E	4213-4275 OWD	855
Mid-Kansas	3	SWc NW 25-7-4 E	4276-4365	115
Shaffer	2	NW SW SW 30-7-5 E	4407-4433	218
Barnsdall	3	NE SW NE 30-7-5 E	4281-4290	1060
Sinclair	1	NE NW NE 19-8-5 E	4108-4128	2000
Tomlinson et al	1	NW NE SE 35-7-5 E	T.D. 4625	Dry
Mid-Continent	2	SEc NE 20-7-5 E	T.D. 4395	Dry
Phillips	1	SEc SW 15-8-4 E	T.D. 4672	Dry

Seminole County

Company	Well No.	Location	Depth	Init Prod
Papoose	1	SE SW NW 21-9-7 E	T.D. 4125	Dry
Mid-Continent	2	SE NE SE 23-7-6 E	T.D. 4488	Dry
Carter	1	NE SE SW 9-9-6 E	T.D. 4505	Dry
Magnolia	1	SWc NW 33-8-7 E	T.D. 4342	Dry
Sunray	2	SE NE NW 19-5-8 E	2580-2654	250
Texas	5	SWc SE 18-5-8 E	2520-2650	850
Anderson-Pritchard	7	NEc SE 18-5-8 E	2510-2577	1800
Belchie et al	1	C W½ E½ 31-5-7 E	1578-1580	2M
Gypsy	1	NW NE NE 5-7-7 E	4424-4434	62
Gypsy	6	SE NW SW 23-7-6 E	4472-4484	380
Sinclair	1	SWc SE 11-8-5 E	4308-4313	1704
Burke-Greis	2	NW SW NE 6-9-6 E	4440-4460	325
Gypsy	1	NWc SW 22-10-7 E	3840-3853	222

Stephens County

Pace et al	9	SEc NW SE NE 12-2-8 W	1559-1570	15
Pace et al	1	NWc NE 12-2-8 W	2134-2135	20
Pace et al	4	NWc NE NE NW 3-2-8 W	1629-1644	200
Maer-Staniforth	1	CNL 10-2-8 W	T.D. 2400	Dry
Brannon-Fisher	2	SE SW SE 19-1-8 W	T.D. 2200	Dry

Tillman County

Pearson	2	SWc 3-5-15 W	T.D. 3207	Dry

Wagoner County

Gleason et al	5	CSL NW SW 29-18-15 E	T.D. 1281	Dry
Ellis	1	SWc SE 27-16-17 E	1705-1709	10

KANSAS

Butler County

Syndicate	1	NW NE NW 26-27-6 E	T.D. 2820	Dry

Coffey County

Cross et al	1	NE SE SW 9-23-14 E	T.D. 1650	Dry
Union	1	NEc SE 8-22-14 E	1330-1360	1M

Ellis County

Slick et al	1	C NW NE 8-11-16 W	T.D. 3545	Dry

Greenwood County

Sheedy	1	SE SW SE 32-23-13 E	1633-1641	75

Marion County

Gear et al	1	NW SW NW 18-21-4 E	T.D. 2720	Dry

Morris County

Loomis-Anderson	1	NWc SE 14-17-7 E	T.D. 1735	Dry

Russell County

Streeter-Stearns	1	NE SE SE 36-12-15 W	T.D. 3305	Dry

Sedgwick County

Fisher-Lauck et al	1	SE NW SE 18-26-2 E	T.D. 2538	Dry
Bu-Vi-BarPet.et al	1	SW NW SW 7-26-1 E	3352-3359	1500
Bu-Vi-Bar Pet. et al.	1	CEL SE 12-26-1 E	3363-3367	1800

Sumner County

Shawver et al	1	SEc NE 27-34-2 E	3505-3538 OWD	175
Dickey et al	1	SWc NE 3-35-1 W	T.D. 4248	Dry
Pryor et al	1	NEc 35-31-2 E	T.D. 1980	Dry

New Field Operations in Oklahoma, Kansas, Panhandle, North, North Central and West Texas, Week Ended December 22, 1928

OKLAHOMA

Alfalfa County

Company	Well No. Farm	Location
Washoma	1.....	SWc NE 14-24-11 W

Carter County

Simpson-Fell	1-Dickerson	SEc 23-1-3 W
Franklin	4-Morris et al.	NE NW SW 11-2-3 W
Gypsy	5-Morris	NEc SE 29-2-3 W

Cimarron County

Magnolia	1-School Land	C SE NE 22-5-5 E

Cotton County

Shasta	2-Chambers	NWc SW SW NW 2-2-10 W

Creek County

Paraffine-Reliance	1-Cumsey	NE SW SW 16-16-12 E
Sunray	3-Froe	SE NW SW 35-16-10 E
Shaffer	3-Froe	NE SW SW 35-16-10 E
Love-Meyers et al.	1-Carter	NWc NE 15-16-9 E
Bengal	9-Tiger	SWc SE SE SW 17-17-7 E
Irelan	5 Unallotted	C NW SW 11-17-10 E
Tibbens	2-Jackson	NW SE SW 4-18-12 E OWD
Holmes et al	1-Narharkey	C SW NE 24-19-9 E

Grady County

Okla. Gas Utilities	4-School Land	NWc SW NW 36-5-8 W

Hughes County

Independent	1-Harjo	NE NW NE 7-8-9 E

Kay County

Wentz	1-Preston	NW SE SW 32-27-1 E

Kiowa County

Russell-Sloan et al.	1-Petty	SWc SE 14-6-15 W
Ketch	1-Malernee	SWc SE 11-6-15 W
Medlin	1-Prough	NEc SW 18-6-16 W
Bridwell et al	1-Ditmar	NEc NW NW SE 18-6-16 W
H. M. P. Oil Co	1.....	SWc NE 15-6-17 W

Lincoln County

Wheeler-Mote et al.	1-Wolfe	NWc NE SW 2-16-5 E

Logan County

Shell	1-Shaffer	SEc NE 19-19-4 W

Major County

Wilson et al	1.....	NEc SW 4-23-16 W

Muskogee County

Bradley	1-Drake	SWc NW SE 12-14-18 E
Boyle et al	1-Russell	CNL NE SE 19-15-16 E
Williams	2-Lewis	NWc SW NE 17-16-17 E

Okfuskee County

Champlin	13-Carter	NEc SE SW 15-11-11 E OWD
Burke-Greis	2-Unallotted	SWc NE SE 36-11-9 E OWD

Oklahoma County

Hall-Briscoe	1-Halmes	SEc 10-11-3 W
I. T. I. O	1-Foster	C NE SW 24-11-3 W
Ramsey	1-Forston	C SW NE 24-11-3 W

Company	Well No. Farm	Location
Coline	1-Olds	C SE NW 24-11-3 W

Okmulgee County

Stosbert et al	1-Nicholas	NWc SW NW 30-13-12 E
Levine et al	1-Holcomb	SWc NW SE 24-14-12 E
Wentz-Campbell et al.	1-Fish	SEc NE NE 6-15-12 E

Osage County

Moore Est	1.....	NWc NE 16-21-9 E
Moore Est	6.....	SEc NW NW NW 16-21-9 E

Pawnee County

Shaffer	3-Brandt	CNL NW SE 15-20-6 E
Reiter-Foster et al.	1-Watkins	C SW SE 5-19-1 W
Skelly	1-Payne	NEc SE 6-17-4 E OWD

Pontotoc County

Superior	3-Maulden	SW NW NW 32-5-5 E
Louisiana	19-Perry	NWc NE 19-5-8 E
Denver Prod & Ref.	1-Roberts	SE NE NE 36-5-4 E

Pottawatomie County

Mid-Kans	2-Gesselman	NW SW NW 25-7-4 E OWD
Shaffer	1-Cherry	NE SE SE 23-7-4 E OWD
Darby	1-Bodkins	SEc NW 16-7-4 E
Shaffer	4-Tolon	SEc SW 30-7-5 E
Sinclair	1-Nesbit	NE SE NW 18-7-5 E
Magnolia	2-Nicholas	NEc NW 31-7-5 E
Magnolia	1-Rooker	NEc SE 12-8-4 E
Sinclair	6-Bellars	SE NW NE 19-8-5 E
Pure	2-Urbanksy	NE SW NE 19-8-5 E
Independent	3-Harding	SW SE NW 18-8-5 E
Rush et al	1-Laster	SE NE NE 19-6-4 E

Seminole County

I. T. I. O	1-Mathis	NE NW SW 13-5-7 E
Magnolia	4-Vanbuskirk	NWc SE 9-8-6 E
Amerada	1-Cross	NEc NW 24-9-5 E
Magnolia	4-Gillim	SW NE SW 13-9-5 E
Magnolia	3-Gillim	SE NE SW 13-9-5 E
Carter	3-Gillim	SW NW SE 13-9-5 E
Carter	2-Gillim	SWc SE 13-9-5 E
Magnolia	2-Varnum	NE SW SE 32-10-6 E

Stephens County

Lone Eagle	8-Simpson	SWc NE NE SE 34-1-8 W
Connor et al	1-Worrell	CSL N½ NE NW 22-1-8 W
Fisher-Rankin	.....	NE NW SW 14-1-8 W
Saterwood-Hart	2-Farrout	NEc NW 9-1-8 W
Fossett et al	1-Smith	SEc SW 23-1-9 W
Westheimer	2-Martin	NW SE SE 11-1-4 W
Magnolia	2-Rivire	SE NE NW 24-1-4 W
Humble	6-Peddycourt	SE NE NE 25-12-4 W

(Continued on Page 47)

New Field Operations in Oklahoma, Kansas, Panhandle, North, North Central and West Texas, Week Ended December 22, 1928

(*Continued from Page 46*)

Tulsa County

Company	Well No. Farm	Location	Survey
Wood Syndicate..	5-Franklin	C SE SW 36-19-11 E	

Wagoner County

Chicago Drlg.	1-Barnes	C NW NE 13-16-17 E	

KANSAS

Barber County

Allison et al.....	1-Morrisse	NW SE SE 9-30-12 W	

Butler County

Skelly.....	1-Adams	SWc 4-26-6 E	
Wichita.....	2-Orban	SEc NW NE 10-26-4 E	

Clay County

Derby-Skow.....	1-McNeil	C SW NW 15-9-4 E	

Coffey County

Union Gas Co....	1-Wenzler	NWc SW 9-22-14 E	

Cowley County

Benedum-Trees...	6-Smith	SWc SE 10-31-3 E	
Trees.....	1-Mauser	C NW NE 12-32-4 E	
Slick.....	2-Youle	NWc 15-32-4 E	
Indep.-McKnabb.	1-State	NEc NW NW 15-32-4 E	
Indep.-McKnabb.	2-State	SE NW NW 15-32-4 E	
Hull.....	19-Kukuk	SE NE NE 24-32-4 E	
Slick.....	1-Youle	NE NW NW 15-34-4 E	

Elk County

Mann et al.....	1-Dory	SWc 6-31-9 E	
Yingling et al....	1-Craner	SEc SW NW 10-31-10 E	
Sherman et al....	3-Armstrong	SWc NW 10-31-10 E	
Tory-Small.....	1-Shell	NWc SE 27-31-10 E	

Ellis County

Cosby et al.....	1-Robben	SWc NW 15-14-16 E	

Greenwood County

Pryor-Lockhart...	3-Winzler	SW SE NW 29-22-13 E	
Sheedy.....	1-Sharp	NE NW NE 5-24-13 E	

Marion County

Empire.....	1-Blanksley	NW NE SW 30-20-4 E	

Morris County

Anderson-Loomis.	.....	NW NE SE 15-16-7 E	

Osborne County

Empire.....	1-Crist	SEc NE 30-9-14 W	

Russell County

Stearns-Streeter et al.	1-Gorham	SWc NE 7-13-15 W	
Empire.....	1-Polycyn	NE NW SE 31-13-15 W	

Sedgwick County

Tilly et al.....	1-Fitzgerld	NWc NE 5-26-1 W	
O'Hara et al.....	1-Townlot	NEc 18-26-1 E	
Ramsey et al.....	1-Schussler	SWc 1-25-1 E	
Shawver et al.....	1-Reeves	SE SW SE 19-28-1 E	
Sullivan et al.....	1-Shelby	NW NE SE 32-29-2 E	

Seward County

Seward.....	1-Seeley	C SE 20-33-33 W	

TEXAS

NORTH EAST CENTRAL TEXAS

Brown County

Amerada et al....	1-Mauldin	Blk-646		Padillo
Bruce.....	4-Shields	.....		Brown
Bryahtet et al....	1-Mayes	Blk-609		Ross
Olvery-Robins....	1-Nash	Blk-1		CEPI&M

Callahan County

Vandeeman.....	1-Moore	Sec-9 Blk-6		SP
Holmes et al.....	2-Hickman	Sec-2		Jones
Humble.....	2-Seale	Sec-129		BBB&C
Von Arx.....	1-Hart	Sec-61		LAL

Concho County

Jones et al.....	1-Jones	Sec-1878		Reh

Coleman County

Dunnigan et al...	4-Rice	Blk-91		Bond
McDonald-Campbell et al.	1-Weaver	Blk-271		Gable
Taylor.....	1-Young	Blk-192		Greer
Anzac et al.....	1-Alexander	Blk-739		Quigley
Barnsdall.....	1-Tholl	Sec-12 Blk-751		Martinez

Eastland County

Belva.....	5-Goode	.....		Stubblefield
Hammun.....	2-Miller	Blk-4 Sec-2		H&TC
Price.....	2-Holcomb	.....		House
Cholson.....	1-Fox	Sec-28	McLennon Co. Sch. Ld.	
McGee et al.....	1-McGee	Sec-29 Blk-2		H&TC
Hamon.....	1-Hortwick	Sec-41 Blk-2		H&TC

Erath County

Associated Oil Co.	1-Cary	.....		Espinosa
Associated Oil Co.	1-Evatt	.....		Espinosa
Hickory.....	2-Smith	.....		Stubblefield
Wickens et al.....	1-Smith	.....		Stubblefield

Freestone County

Hoosier et al.....	1-Carter	.....		Sweet

Limestone County

Reiter-Arrington..	1-Forrest	.....		Neil

Nolan County

Root et al.....	1-Simpson	Sec-33 Blk-19		T&P

Shackelford County

Roeser-Pendleton.	3A83-Cook	Sec-83		ET
Roeser-Pendleton.	3A83-Cook	Sec-83		ET
Tannehill et al....	4-Mathews	Sec-34		ET
Besk.....	1-Walker	Sec-8 Blk-11		T&P
Roeser-Pendleton.	34A60-Cook	Sec-60		ET
Cranfill-Reynolds.	2-Flippen	Sec-35 Blk-11		T&P
Cranfill-Reynolds.	1-Flippen	Sec-35 Blk-11		T&P

NORTH TEXAS

Archer County

Peacock.....	2-Williams	Abst-182		Hand
Rathke-Panhandle	10-Prideaux	Abst-1126		Rohus
Gulf Prod.....	8-Hayter	Sec-2409		TE&L
Turner et al.....	3-Lyles	Blk-7		Hooper
Gulf Prod.....	1-Alexander	Blk-22		Meade
Humble.....	1-Hudson	Blk-83		Harris
Cont.-Republic...	6-Oldham	.....		Hubble
Madden-Hunt....	13-Richardson	Blk-7		SAR
Reno.....	5-Parrish et al.	.....		SP

Bayler County

Stephens-Head....	1-Porter	.....		Barkers

Cooke County

Company	Well No. Farm	Location	Survey
Griffer et al.....	2-Wheelock	Abst-1036	Teal
Rewaldt et al.....	1-Shotwell	Abst-68	Bonds
Bell-Griffee.....	1-Dove	Abst-223	Coffee
Kewanee.....	4-Hyman	.....	ET

Grayson County

Simpson et al.....	3-James	.....	Ingram

Wichita County

Staley-Wynne....	1-Case	Sec-831	TE&L
United Prod.....	2-Hodge	Abst-139	HT&B
Staley-Wynne....	6-Kemp	Blk-82	HT&B
Staley-Wynne....	7-Kemp	Blk-82	HT&B
Staley-Wynne....	8-Kemp	Blk-82	HT&B
Clark-Dunaway..	1-Allingham	Sec-32 Blk-5	H&TC
Humble.....	4-Taylor	Blk-81	KWVFL
Bridwell.....	4-Burnett	Sec-3 Abst-132	H&TB
Ascott.....	2-Jackson	League-4 Blk-25	DCSL

Wilbarger County

Staley-Wynne....	4-Waggoner	Sec-32 Blk-4	H&TC
Fain-McGaha....	7-Waggoner	Sec-31 Blk-4	H&TC
Fain-McGaha....	26-Waggoner	Sec-24 Blk-4	H&TC
Cosden.....	33-Waggoner	Sec-31 Blk-4	H&TC
Phillips.....	1-Waggoner	Sec-18 Blk-4	H&TC
Phillips.....	2-Waggoner	Sec-43 Blk-4	H&TC
Phillips.....	3-Waggoner	Sec-42 Blk-4	H&TC
Phillips.....	2-Waggoner	Sec-43 Blk-4	H&TC

Young County

Gwynn.....	2-Kunkel	Abst-1838	BBB&C
Steed-Gaves.....	9-Snyder	Abst-1276	Wilson
Walton et al.....	1-Prideaux	Abst-274	Tynes
Pennell et al.....	1-Cox	Abst-274	Tynes
Underwood Drlg. Cont.	1-Campbell	Sec-1390	TE&L
King Royalty....	13-Hawkins	Sec-1914	TE&L
Pennell-Holcomb..	1-Jones	Abst-252	Sallie
Ulrey et al.....	1-Barrett	Sec-453	TE&L
Holbrook-Woods..	5-Watson	Blk-22	YCSL
Petroleum Prod...	4-Parish	Sec-40?	TE&L
Petroleum Prod...	2-Parish	Sec-40?	TE&L

PANHANDLE

Carson County

Holmes et al.....	1-Quinn	Sec-7 Blk-9	I&GN

Gray County

Malone et al.....	1-Taylor	Sec-22 Blk-B-2	H&GN
Marland Prod.....	1-Finley	Sec-32 Blk-B-2	H&GN
Southern Pet.....	2-McConnell	Sec-174 Blk-3	I&GN
Constantine et al..	1-Dial	Sec-32 Blk-25	H&GN
Danciger et al....	1-Williams	Sec-6 Blk-1	ACHTB

Hutchinson County

Phillips.....	4-Johnson	Tract-2	Whitley
Phillips.....	3-Pulaska	Tract-1	Whitley
Phillips.....	4-Sanford	Sec-77 Blk-46	H&TC
Phillips.....	3-Sanford	Sec-77 Blk-46	H&TC
Phillips.....	16-Whittenburg	Sec-63 Blk-46	H&TC
Phillips.....	15-Whittenburg	Sec-63 Blk-46	H&TC
Phillips.....	5-Johnson	Sec-64 Blk-46	H&TC

Moore County

Gibson.....	1-Sneed	Sec-70 Blk-GTM3	Gunter et al.
Phillips.....	1-Burnett	Sec-192 Blk-3-T	T&NO

Wheeler County

Martin et al.....	1-Close	Sec-82 Blk-23	H&GN
Wishkamper et al.	2-Fee	Sec-70 Blk-23	H&GN
Johnston et al....	1-Purcell	Sec-50 Blk-17	H&GN
Whittington et al..	3-Williams	Sec-9 Blk-27	H&GN
Upham.....	1-Frostle	Sec-130 Blk-23	H&GN

WEST TEXAS

Crane County

Gulf Prod.....	6-Waddell	Sec-12 Blk-25	PSL

Glasscock County

Sprague.....	4-Roberts	Sec-156 Blk-29	W&NW
Penn.....	1-Mason et al.	Sec-45 Blk-30	W&NW
Gibson-Johnson...	1-Mann	Sec-6 Blk-33	T&P
World.....	1-McDowell	Sec-21 Blk-34	T&P
White Eagle.....	1-Dunbar	Sec-46 Blk-34	T&P

Howard County

Schermerhorn....	3-Roberts	Sec-137 Blk-29	W&NW
Owen-Sloon.....	8-Roberts	Sec-36 Blk-29	W&NW
Ward.....	5-Roberts	Sec-137 Blk-29	W&NW
California.....	2-Roberts	Sec-137 Blk-29	W&NW
Dunnigan-Hyer...	4-Clay	Sec-126 Blk-29	W&NW
Pure.....	8-Chalk	Sec-125 Blk-29	W&NW
Louisiana.....	3-Sittles	Sec-6 Blk-32	T&P
Green.....	5-Clay	Sec-127 Blk-29	W&NW
Shell.....	1-Sittles	Sec-35 Blk-29	W&NW
Hyer-Yates.....	2-Clay	Sec-155 Blk-29	W&NW
Howard.....	1-Abrams	Sec-5 Blk-32	T&P
Henshaw.....	3-Settles	Sec-6 Blk-32	T&P

Lynn County

Miller et al.....	1-May	Sec-10 Blk-7	EL&R

Pecos County

Talbot-Ditman...	1-Unsicken	Sec-25 Blk-10	G&GN

Reagan County

California.....	5-Univ.	Sec-16 Blk-7	Univ.

Reeves County

White et al.....	1-Hershenson	Sec-5 Blk-51	T&P
Penn et al.....	1-Boles	Sec-36 Blk-50	T&P

Schliecker County

McKavett.....	1-Tisdale	Sec-1499	Halm

Upton County

Gulf Prod.....	60-McElroy	Sec-205 Blk-F	CCCD
Gulf Prod.....	59-McElroy	Sec-195 Blk-F	CCSD
Gulf Prod.....	7-McElroy	Sec-196 Blk-F	CCSD

Winkler County

Southern Crude...	T88K5-Hendricks	Sec-41 Blk-26	PSL
Southern Crude...	T88D5-Hendricks	Sec-4 Blk-B-12	PSL
Southern Crude...	T88B4-Hendricks	Sec-4 Blk-B-12	PSL
Morris-Henshaw..	1-Hendricks	Sec-28 Blk-B-5	PSL
Humble.....	2-Hendricks	Sec-10 Blk-B-12	PSL
Southern Crude...	T89J1-Hendricks	Sec-9 Blk-B-12	PSL
Southern Crude...	T88M31-Hendricks	Sec-33 Blk-26	PSL

Completions in Texas, Week Ended December 22, 1928

NORTH EAST CENTRAL TEXAS

Anderson County

Company	Well	Survey	Sec. and Blk.	Depth	Init. Prod
Humble	1-Todd	Clark		3720-3727	1658 (17 Hrs.)

Brown County

Bearman et al	3-Spencer	Swindle		1091-1105	40
Hammon et al	5-Lewis	Kenney		1055-1078	10
Mitcham et al	1-Newton	Honeycutt	Blk-623	1183-1188	15
Young Bros. et al	15-Hickman	Benson	Blk-783	1271-1279	30
Lloyd	12-Collier	Smith	Blk-12	417-428	3
Anderson et al	1-Williams	Jones	Blk-283	T.D. 1460	Dry
Armstrong et al	1-Armstrong	H&GN	Blk-1	T.D. 1460	Dry
Brude	3-Shields	Brown		T.D. 521	Dry
Caldwell	1-Caldwell	Kerr Co. Sch Ld.	Sec-15 Blk-279	T.D. 930	Dry
Crabb-McNell-Stout	1-Moon	Kerr Co. Sch. Ld.	Blk-277	T.D. 615	Dry
Cranfill-Reynolds	1-Hickman	Benson	Blk-783	T.D. 1325	Dry
Lloyd	1-Bailey	Winn	Blk-137	T.D. 437	Dry
Olvey-Robins	1-Nash	CEPI&M	Blk-1	T.D. 1339	Dry
Ramsey	1-Wooldridge	Wooldridge		T.D. 1278	Dry
Riordan et al	1-Pugh	Jennings	Blk-353	T.D. 1208	Dry

Callahan County

Holmes et al	1-Hickman	Jones	Sec-2	441-456	13
Hays	3-Hearne	BBB&C	Sec-129	758-762	240
Hart	1-Hart	D&DA	Sec-7	530-535	3

Coleman County

St. John et al	1-Eddington	Victoria Co. Sch. Ld.	Sec-37 Blk-187	1121-1125	4.4M
Eastland	1-Morris	Webber	Blk-722	1997-2007	401
Sterling	1-Haygood	Lappe		T.D. 2225	Dry
Sullivan et al	1		Sec-11 Blk-751	T.D. 1602	Dry
Jamison-Pollard	1-Hinds	GH&H	Sec-75	T.D. 2250	Dry
Kingwood	1-Kemp	Frazer	Blk-742	T.D. 2854	Dry

Eastland County

Hoffman-Page	1-Coon	H&TC	Sec-27 Blk-2	1265-1280	15
Chestnut-Smith	1-Harrell	ET	Sec-6 Blk-2	1434-1465	2&.3M
Larson	4-Ramsower	H&TC	Sec-38 Blk-4	3917-3923	20
Jordan et al	1-Shomborger	H&TC	Sec-17 Blk-4	T.D. 1952	Dry
Lewis et al	1-Johnson	H&TC	Sec-14 Blk-4	T.D. 1800	Dry
Mays-Heath	1-McCord	Lyman		T.D. 1500	Dry
Texas-Pacific	2-Fee	RCSL		T.D. 830	Dry
Tipplehorn Bros	1-Parker	H&TC	Sec-6 Blk-1	T.D. 3063	Dry

Erath County

Peters et al	1-Barton	Kelly		T.D. 3525	Dry

Limestone County

Why Not Oil Co.	2-Rhea	Varella		2889-2905	75

McCulloch County

Lanning-Roberts	2-Barton	Bleike	Blk-1055	T.D. 1020	Dry

NORTH TEXAS

Archer County

Peacock	1-Williams	Hand		569-573	1000
Continental	2-Parrish	SP		T.D. 1596	10
Freeman et al	2-Hennig	Meade	Blk-21	1423-1431	120
Rathke	6-Andrews	Spavin		931-943	6
Texas	10-Hayter	TE&L	Sec-2409	1432-1438	10
Turner et al	2-Lyles	Hooper	Blk-7	1689-1697	60
Ascott	1-Jackson	DCSL	League-4 Blk-25	T.D. 1822	Dry
Humble	1-Wilson	ATNCL	Sec-114 Blk-1	T.D. 1600	Dry
Johnson et al	1-Jackson	Aldridge	Blk-73	T.D. 1602	Dry
Pandem	1-Wilson	Hutchinson		T.D. 1402	Dry
Stumpf	1-Wilson	ATNCL	Sec-85 Blk-886	T.D. 1604	Dry

King County

Texas	1-Johnson	H&GN	Sec-4	T.D. 4298	Dry

Wichita County

Holbrook-Woods	26-Kemp	KWVFL	Blk-82	1470-1494	630
American	1-Fee	Sharp		T.D. 1250	Dry
Bridwell	2-Burnett	HT&B	Sec-3	T.D. 2502	Dry
Cotton	2-Michiel	Netherly		T.D. 870	Dry

Wilbarger County

Consolidated	1-Waggoner	H&TC	Sec-57 Blk-4	T.D. 1980	Dry
Robertson	1-Waggoner	Calhoun		T.D. 2424	Dry
Phillips	1-Waggoner	H&TC	Sec-18 Blk-4	T.D. 2518	Dry
McKanna	3-Waggoner	H&TC	Sec-32 Blk-4	1830-1846	182
Bars-Dillard	5-Waggoner	H&TC	Sec-5 Blk-5	1861-1872	15

Young County

Petroleum Prod	1-Parish	TE&L	Sec-409	1098-1106	18
King Royalty	12-Hawkins	TE&L	Sec-1914	503-529	25
Riggs et al	7-Sweet	TE&L	Sec-1488	563-566	12
Clark et al	1-Rushing	TE&L	Sec-3401	T.D. 900	Dry
Eckerty et al	1-Clark	TE&L	Sec-209	T.D. 1003	Dry
Scott et al	1-Alexander	BS&F		T.D. 503	Dry
Woolen-Reed et al	1-Davis	TE&L	Sec-1906	T.D. 751	Dry

PANHANDLE

Carson County

Gates	2-Burnett	I&GN	Sec-107 Blk-5	T.D. 2957	Dry

Gray County

Texas	3-Davis	ACH&B	Sec-8 Blk-1	T.D. 3282	Dry
Gulf Prod	3-Holmes	I&GN	Sec-87 Blk-3	3138-3148	142
Collins et al	1-Bull	H&GN	Sec-3 Blk-B-2	2765-2789	100
Adams et al	2-Morse	H&GN	Sec-3 Blk-26	2460-2581	120
Danciger et al	3-Morse	H&GN	Sec-2 Blk-26	2590-2607	15M
Shamrock	1-Clayton	H&GN	Sec-50 Blk-25	2817-2822	45
Texas	3-McLarty	ACHTB	Sec-1 Blk-1	2520-2560	88

Hutchinson County

White Eagle	4-Montgomery	Whiteley		2900-2930	50

Wheeler County

Lone Star	1-Ackley	H&GN	Sec-20 Blk-24	1837-1882	30M
White Eagle	1-Shelton	H&GN	Sec-100 Blk-17	T.D. 2700	Dry

WEST TEXAS

Brewster County

Reese-White	1-Kimball	GH&SA	Sec-204 Blk-9	T.D. 2265	Dry

Crane County

Simms-Atlantic	2-Univ.	Univ.	Sec-34 Blk-30	2958-3008	200

Fisher County

Cranfill-Reynolds	2-Young	BBB&C	Sec-208 Blk-1	3128-3136	93

Glasscock County

Gulf Prod	3-Clay	W&NW	Sec-155 Blk-29	1877-1890	50

Howard County

Dunnigan-Hyer	2-Clay	W&NW	Sec-126 Blk-29	1804-1812	112
Dunnigan-Hyer	3-Clay	W&NW	Sec-126 Blk-29	1796-1816	85
Merrick-Lamb	6-Clay	W&NW	Sec-126 Blk-29	1875-1890	65
F.H.E. Oil Co	5-Roberts	W&NW	Sec-137 Blk-29	2948-2961	1482
Marland	4-Clay	W&NW	Sec-124 Blk-29	1776-1784	249
Marland	11-Clay	W&NW	Sec-139 Blk-29	1788-1793	45
Luisiana	1-Abrams	T&P	Sec-3 Blk-32	T.D. 3217	Dry
Magnolia	15-Roberts	W&NW	Sec-157 Blk-29	T.D. 3114	Dry

Irion County

Sun	1-Williams	H&TC	Sec-39 Blk-21	T.D. 3680	Dry
Moore-Kennedy	1-Tankersley	GCCSF	Sec-23	1344-1347	10

Loving County

Lockhart	1-Wheat	W&NW	Sec-83	4206-4303	38
Hadlock et al	2-Ramsey	W&NW	Sec-80 Blk-1	4247-4395	31
Lockhart Bros	1-Lockhart	H&TC	Sec-85 Blk-33	T.D. 4290	Dry

Pecos County

Wohnlick et al	1-Arnold	GC&SF	Sec-25 Blk-1	T.D. 1550	Dry
California	4-Smith	TC	Sec-24 Blk-194	1690-1860	50 (1 Hr.)
Mid-Kans.-Transc.	4-Yates	I&GN	Sec-63 Blk-1	1138-1148	52
Mid-Kans & Transc.	11-Yates	I&GN	Sec-60 Blk-1	1120-1175	195 (5 Mins.)

Ward County

Denver Prod. & Ref.	1-Cherokee	H&TC	Sec-215 Blk-34	T.D. 4703	Dry

Winkler County

Indep.	3-Dardenan	PSL	Sec-41 Blk-B-5	T.D. 3100	Dry
Marland	1-Hendricks	PSL	Sec-30 Blk-B-5	T.D. 3071	Dry
Southern Crude	T673B1-Hendricks	PSL	Sec-33 Blk-26	T.D. 3430	Dry
Southern Crude	T673B5-Hendricks	PSL	Sec-33 Blk-26	2834-3010	75 (1 Hr.)
Southern Crude	T672D1-Hendricks	PSL	Sec-28 Blk-26	2834-2836	60 (1 Hr.)
Southern Crude	T672D3-Hendricks	PSL	Sec-28 Blk-26	2939-2940	100
Southern Crude	T88A5-Hendricks	PSL	Sec-44 Blk-26	2919-2935	2400
Southern Crude	T88D2-Hendricks	PSL	Sec-4 Blk-B-12	2655-2706	100(1 Hr.)
Southern Crude	T88K4-Hendricks	PSL	Sec-41 Blk-26	T.D. 2825	2400
Southern Crude	T88M24-Hendricks	PSL	Sec-33 Blk-26	2828-2830	3600
Southern Crude	T88N1-Hendricks	PSL	Sec-28 Blk-26	2813-2817	1200
Southern Crude	T88N2-Hendricks	PSL	Sec-28 Blk-26	2850-2868	700
Southern Crude	T88N3-Hendricks	PSL	Sec-28 Blk-26	2610-2614	1748
Independent	2-McCabe	PSL	Sec-36 Blk-B-5	2865-3069	50
Magnolia	1-Hendricks	PSL	Sec-34 Blk-26	2871-2919	20
Murchinson et al	2-Hendricks	PSL	Sec-34 Blk-26	2760-2875	180
Pierce	C-10-Hendricks	PSL	Sec-45 Blk-26	2601-2618	20000
Southern Crude	T671B3-Hendricks	PSL	Sec-44 Blk-36	2785-3038	528
Southern Crude	T88T4-Hendricks	PSL	Sec-34 Blk-26	2700-3205	100
Southern Crude	T88V1-Hendricks	PSL	Sec-29 Blk-26	2718-3015	528
Southern Crude	T89H1-Hendricks	PSL	Sec-46 Blk-26	3000-3030	300
Southern Crude	T88T3-Hendricks	PSL	Sec-34 Blk-26	3126-3160	150
Southern Crude	T88N5 Hendricks	PSL	Sec-28 Blk-26	2730-2766	156
Southern Crude	T88R2-Hendricks	PSL	Sec-27 Blk-26	2610-2614	840

Completions in North Louisiana and Arkansas, Week Ended December 20, 1928

Louisiana—Bossier Parish

Company	Well	Location	Depth	Yield
Triangle Drill. Co.	Bulkley No. 1	9-20-13	4558	salt water, abd.

Caddo Parish

Tidal Oil Co.	McGrary No. 1	23-19-16	2500	salt water, abd.

Sabine Parish

Texas Company	Hamlin No. 1	28-10-13	4304	dry, abd.

Morehouse Parish

Nat. Gas Prod. Co.	Tensas Delta No. 13	34-22-4E	2203	3M gas

Ouachita Parish

Company	Well	Location	Depth	Yield
Magnolia Pet. Co.	Millsaps No. 3	26-20-4E	2195	2M gas
Union Consumers G. & P. Co.	Slaughter No. 2	24-19-4E	2223	600,000 M gas

Arkansas—Union County

Imperial O. & G Co.	Goodwin No. 1	26-17-16	3139	salt water, abd.

Rainbow City

Magnolia Pet. Co.	W. K. Gregory No. 2	15-17-14	2823	35M gas
Skelly Oil Co.	Kelley No. 1	9-17-14	2830	50M gas

Drilling Operations in Oklahoma, Kansas and Texas, Week Ended December 22, 1928

	Dec. 22 Loc.	Rigs	Drg.	S.D.	Week Ended Total	Dec. 15 Loc.	Rigs	Drg.	S.D.	Total
OKLAHOMA										
Osage	1	5	39	2	47	2	7	36	2	47
Bristow-Cushing	10	6	43	7	66	8	4	43	6	61
North Oklahoma	12	8	49	27	96	6	8	52	24	90
South Oklahoma	9	14	85	29	137	9	8	82	30	129
Muskogee	..	6	42	26	74	..	10	39	29	78
Okmulgee-Bristow	9	33	68	18	128	8	33	71	21	133
Seminole Dist.	17	71	359	25	472	24	77	355	25	481
Total Oklahoma	58	143	685	134	1,020	57	147	678	137	1,019
KANSAS	..	*46	257	55	358	..	*48	247	48	343

	Dec. 22 Loc.	Rigs	Drg.	S.D.	Week Ended Total	Dec. 15 Loc.	Rigs	Drg.	S.D.	Total
TEXAS										
Central	55	25	179	123	382	54	34	195	134	417
Panhandle	28	10	101	48	187	19	20	99	47	185
N. Central	29	42	123	42	236	38	25	132	36	241
West	55	25	193	137	410	40	30	215	153	438
Total Texas	167	102	596	350	1,215	151	109	641	380	128
New Mexico	7	3	33	11	54	10	2	32	6	50
GRAND TOTAL	222	294	1,571	550	2,647	218	306	1,598	571	2,693

*Loc. and Rigs Combined.

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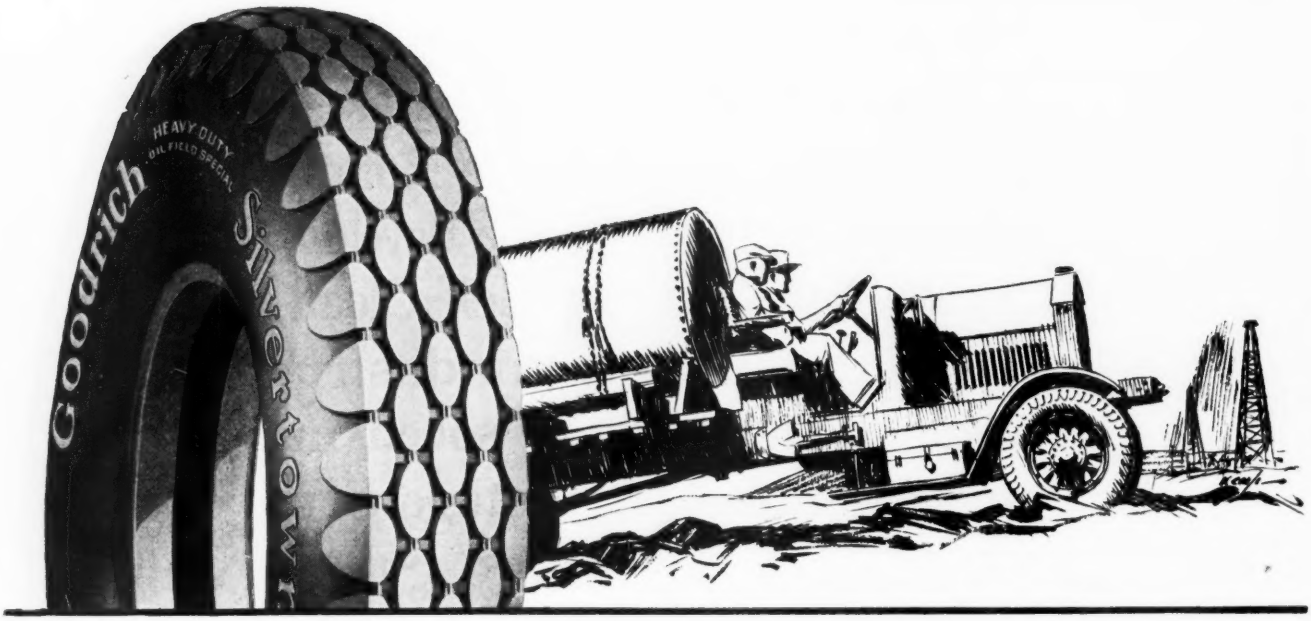

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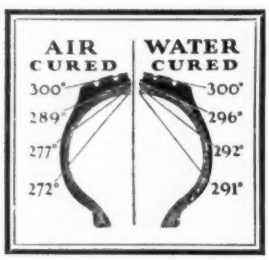

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Measure of Michigan's Oil Prospects Is Old Ohio-Indiana Areas

By Paul Wagner
N. P. N. STAFF WRITER

Article 2

MICHIGAN, as an oil producing state, must not be thought of in Mid-Continent terms, either at present or in the future.

Not only does it fail to exhibit any of the characteristics of a Seminole or a west Texas district, it is not even comparable in regularity or staying qualities with the Bartlesville sand areas of northeastern Oklahoma and southeastern Kansas.

As a part of the Ohio-Indiana producing province, Michigan can be justly measured only by the standards set in that central western region. These standards will limit its influence in contrast with Mid-Continent operations, but it is not intended to convey the thought that Michigan oil prospects are totally discouraging.

It is not only possible, but highly probable, that Michigan will, in time, occupy a place of some importance in oil production of the central western province. The important thing in the present discussion is that its future fields promise to be of the long-lived, non-spectacular type ordinarily found in Ohio, Indiana and Illinois, where production comes from Paleozoic limestones.

The development of considerable settled production of this type in an important marketing area, such as Michigan, would play a part in conditions affecting all branches of the industry. Under such a situation some of the isolation of northern territory from close-at-hand crude supply would be overcome.

Different type fields than those developed at Saginaw and Muskegon will have to be found, however, before Michigan assumes any great importance in the petroleum production picture.

Saginaw, as a field, was a flop. From maximum daily production of less than 1500 barrels daily it had dropped to 387 barrels from 342 wells, July 1, 1928. It might have been a flop under the best of conditions, but the losses suffered there would have been materially reduced had the number of wells drilled been cut by four-fifths. A profit might even have been realized by consecutive drilling, the watching of costs and the exercise of proper field practice.

In the case of Muskegon, there is no question but that the field would have been a profitable operation for every operator in the producing area had the wells been reasonably spaced, proper field practice observed and intelligent attention given drilling and production costs.

The drilling of one to three wells on individual leases totaling less than five acres is suicidal in fields of the Muskegon type. Operators in the field were not responsible for the small units in which the acreage was originally held, but some of them are directly chargeable with failure to recognize the common rights of other operators and the landowners.

It was unfortunate for the Muskegon field, which might have attained a settled production of 7000 to 10,000 barrels daily had it been properly handled, that the promotional and shyster type operator gained a foothold there. This foothold was sufficient to permanently injure the field before it was possible by legal methods to curb the willful wastage of gas, the conservation of which was essential to economical production of the oil, the obtaining of highest ultimate yields and the retarding of water encroachment.

The encroachment of bottom water throughout the field came almost over night. It was directly chargeable to the conditions mentioned and for that reason was doubly unfortunate. Wells that came in with flush initial yields of 150 to 2000 barrels, with 1,500,000 to 15,000,000 cubic feet of gas, dropped quickly with the overdrilling of the field to small pumpers in some instances.

Several of the edge wells, which came in with large initials, due to high porosity at such locations, literally went "dead" over night when two operators refused to abide by a gentlemen's agreement for pinching back wells throughout the field to gas/oil ratios of 2000 cubic feet to the barrel of oil.

The operators mentioned blew their wells wide open, making approximately 10,000,000 cubic feet of gas each, in attempting to rid themselves of the gas and complete their wells as oil producers. As a result, the field was making only about 2300 barrels daily from around 70 wells in December.

Larger operators in the field and several of the smaller ones cooperated sincerely and unselfishly in the efforts made by the state department of conservation to carry protective measures forward but were defeated by the activities of the few.

PRODUCTION so far found in Michigan, which includes scattered wells elsewhere in the state, has come entirely from the limestone and dolomites of Paleozoic age, ranging from Lower Mississippian to Lower Ordovician beds. Future production may be expected to be confined to similar horizons.

The sedimentary rocks which underlie the mantle of glacial drift covering virtually the entire state belong entirely to the Paleozoic period. Rocks of the more recent geologic periods either were not deposited in the area or if deposited they were later removed by erosion.

Insofar as present knowledge and data afford basis for judging oil potentialities, Michigan's chances ap-

Conservation an Issue in Michigan

Conservation of oil producing areas means more than the orderly development of fields capable of producing 100,000 barrels a day or more.

Mr. Wagner points out, in his second article on Michigan, that promoters and inexperienced and over-enthusiastic local operators largely destroyed the prospects for small pools of long life at Saginaw and Muskegon against the efforts of the oil companies for sane development, and before the state itself could put conservation orders into effect, in the case of the latter field.

He goes into the prospects for development of other producing areas in the southern part of the state, where even small but settled production would have a relatively greater importance because of the distance of surrounding territory from other crude supplies.

This general map of southern Michigan shows near its center the oil development areas of Muskegon, Midland and Saginaw counties. The field names are identical with the counties in which development is situated. In southeastern Michigan, oil shows mapped were found years ago near Port Huron, St. Clair county, and Dundee, Monroe county.

pear limited to the southern peninsula, which extends northward like an open hand, thumb included, from the northern boundary of Ohio and Indiana.

The southern peninsula is bounded on the west by Lake Michigan, on the north by the straits of Mackinac, and on the east by Lake Huron, Lake St. Clair, the Detroit river and the western end of Lake Erie.

Two geological provinces of almost equal size are found in the northern peninsula. The western half, which lies between the northern boundary of Wisconsin and the southern shore of Lake Superior, is composed entirely of pre-Cambrian and igneous rocks, hence being automatically eliminated from oil consideration. It is in this part of the state where the famous iron and precious metal mines of the Menominee and other ranges are found.

The eastern half of the northern peninsula offers surface exposures of the lowermost sedimentary formations of the Paleozoic series. While the southern rim of this part of the peninsula might afford some slight possibilities of oil under proper structural conditions the formations are under insufficient cover for important accumulations to have been retained.

Furthermore, the available outcrops of these possible producing horizons occur within the limits of the eastern half of the northern peninsula, where studies have failed to show evidence of their having contained bituminous material. This is particularly true of the Trenton and Niagaran limestones.

Taking, then, the southern peninsula as our particular area for consideration, an unique combination of geological and geographical phenomena is found.

IF THE glacial drift could be removed from the surface of the southern peninsula the arrangement of geological formations exposed would resemble a stack of graduated saucers, the diameter of each increasing in downward succession.

It thus becomes evident that we have here a basin with the youngest formation, geologically speaking, exposed in its center; the older beds coming to the surface in outcrop as concentric rings around this central area.

The general form of the basin seems to have been maintained consistently throughout the entire period of deposition of the sedimentary beds found in Michigan. Due to certain forces as yet not fully determined, however, these beds appear to have been slightly deformed in some places to produce gentle anticlinal folds. At present it seems most logical to expect commercial accumulations of oil and gas along such lines of deformation.

The geologist in Michigan labors under serious handicaps, due principally to the almost total lack of reliable sub-surface data with which to work.

It must be remembered, first, that due to the glacial drift cover there are not outcrops on the southern peninsula which afford any information on which (1)—to draw conclusions relative to structure, (2)—that so few wells have been drilled to sufficient depth over the area generally to give sub-surface data, and (3)—that the logs of the well drilled are

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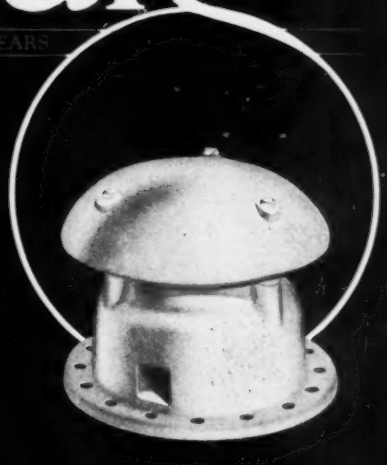

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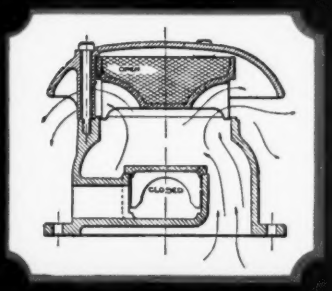
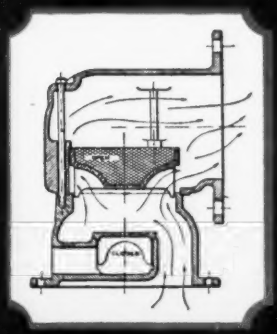
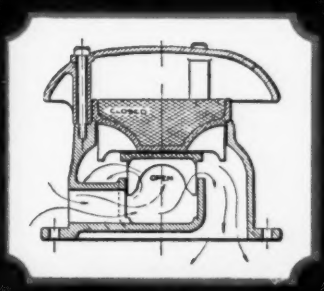


1–Action Releasing Vapors.



3–Pressure-Vacuum Gauge with the Pipe Outlet.



2–Action Relieving Vacuum.

This type gauge is for use where it is desired to carry the vapors away from the tank, either for safety or for use as fuel.

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in many cases totally unreliable and, therefore, misleading.

The majority of the sub-surface data so far developed comes from areas along the shores of the Great Lakes where water action has reduced the thickness of the glacial drift and where wells were drilled into the older sedimentary beds for fresh water supply.

As a result of slow, painstaking effort over a period of three-quarters of a century, well records were collected and analyzed by a state geological department that was underfinanced until after the world war. Yet from this work a few structural trends were indicated around the outer edges of the basin.

SOME encouragement to further work of this character was given by the discovery and development of the fields of southern Ontario in 1898. It was known that the same formations that produced the oil there underlie Michigan.

Desultory drilling yielded slight shows along the Detroit and St. Clair rivers in Michigan, but no commercial wells were completed with the possible exception of those drilled about 30 years ago by G. B. Stock of Port Huron. He brought in several two or three barrel wells from the top of the Dundee limestone at depth of 520 feet, near Port Huron, in St. Clair county.

From that time until 1910 other wells were drilled in the vicinity. Then 21 wells ranging in depth from 500-650 feet were drilled with combined production of about 10 barrels daily. These wells proved the presence at Port Huron of an anticline.

The first truly commercial production was found in the western part of the city of Saginaw in 1912 from the Berea sandstone at about 1850 feet. The wells declined so rapidly, however, and the acreage was drilled so closely that the boom soon petered out. It had the effect, nevertheless, of stimulating what for Michigan was "considerable wildcatting" on the eastern shore.

Interest was reduced to a minimum when oil shows failed to materialize into commercial wells. It was not until 1925, when Saginaw saw production from the top of the Traverse formation of Devonian age, that special attention was paid to development.

The first few Saginaw wells in the second, or 2300-foot pay yielded initial productions of more than 100 barrels daily, but declined rapidly. Acreage parcels in the field were under diverse ownership and enough leases were held by promotion outfits to bring about over-drilling. It is estimated that almost $2,000,000 was lost in the second Saginaw development. Here, again, drilling proved existence of structure.

Considerable wildcatting in various parts of the state followed, but without commercial results until discovery of the Muskegon field, in the county of the same name, in December, 1927. The discovery well was the Muskegon Oil Corp's. No. 1 Reeths, initial production 340 barrels daily, in the Traverse formation at about 1650 feet.

The Muskegon field apparently differs from other developed Michigan areas in that larger initial productions were found in both the Traverse and Dundee formations, the last mentioned at 2050-2100 feet; it also differs in the large quantities of gas found with the oil at both levels.

Samples from producing horizons at Muskegon indicate considerably greater porosity than found elsewhere in the state. Further, an irregularity of porosity in various parts of the field is noted. The areas of highest porosity do not necessarily conform to the highest parts of the sub-surface structure.

These factors led to further study of the Traverse and Dundee formations at outcrop, where it was noted that remnants of one-time coral reefs existed, more especially in the Traverse formation. Applying these observations to the rather unusual conditions of irregularity mentioned, it has been suggested that the production of Muskegon comes from an area which is structurally high and contains an abundance of coral reef remnants.

In this way, the peculiar conditions found in the producing horizons at Muskegon can be satisfactorily explained. It may be that, particularly in the Dundee formation, the high porosities noted may not be due to coral reefs but in any event they apparently result from factors of equal irregularity.

The high porosities found at Muskegon, together with their wide variance, even in adjoining wells, have not been found in other developed areas of Michigan. Similarly, the large quantities of gas found in both horizons at Muskegon have been absent elsewhere. It is a fact also that evidences of coral reef conditions are lacking in other developed areas.

WHERE coral reef remnant are seen in outcrop, the adjoining beds dip steeply away from them for a few feet, whereupon they quickly flatten out again to their normal rate of dip. Sharp dips between certain wells have been noted in the Muskegon field, which can be best explained by the coral reef theory.

Little information is available concerning beds below the Dundee horizon. A study of the outcrops of these beds on the northern peninsula does not reveal any evidence of coral reef conditions and while there is wide variance in the character and composition of these lower formations they seem to show greater regularity than those of Devonian age.

Probably the most interesting current development, aside from the Muskegon field, is the exploratory work being conducted by Pure Oil Co., in township 14 north, range 2 west, Midland county, 10 miles east of Mt. Pleasant.

Three wells have been completed and three more are drilling on a block of approximately 80,000 acres in the Midland area. The block more than covers a structure based on subsurface data using a brine horizon of middle Mississippian age as a marker. Sub-surface data was provided by wells drilled by the Dow Chemical Co., of Midland, which manufactures bromine and other chemicals from the brines.

THE Dundee oil producing horizon on the Pure block is found at approximately 3530-3540 feet and has so far yielded wells with initial productions of 50 to 240 barrels daily. There is little gas, comparatively speaking, produced with the oil. This fact, coupled with the relatively low initial productions, would seem to indicate that coral reef conditions have not been found, if existing there. In the Midland area, the Traverse formation, found at 3100 feet, yielded only showings.

Relative depth required to reach the Traverse and Dundee formations in the area results from the fact that the wells are near Mt. Pleasant, which is the center of the so-called Michigan basin.

It was interesting to note on a visit to the Midland field the conservative and careful methods employed by the Pure in developing this prospect. Costs are kept at a minimum, all wells are cored, best field practice governs, spacing is on a basin of one well to 10 acres, and wells are located in such manner as to adequately test limits of the structure.

The only other area in the state which is definitely proved as possible for commercial production is six miles west of the town of Dundee, Monroe county, near the southeastern corner of the state. Two wells have been completed there, one about six years ago and the other last July, at depth of 2100 feet. Both were drilled by local capital. The wells made between 10 to 25 barrels each, daily, after the first heads. They are now being exploited and the oil moved to the Paragon Refining Co., at Toledo, by truck.

Production comes from the Trenton limestone of Ordovician age. There is more than enough gas present to flow the 43 A. P. I. gravity oil by heads, exploitation being carried on 10 hours each day.

A sub-surface structure exists at Dundee but development has been

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insufficient to outline its limits. There is some question about the geologic influence obtaining in the area, whether it comes from anticlinal deformation of the Michigan basin type or whether the Cincinnati arch is responsible. It has been generally accepted that the Cincinnati arch is the chief structural influence in the southeastern corner of Michigan and the adjacent area in Ohio. Just what the mechanics of this influence may be remain in controversy.

Bill Imposes $1 a Barrel Tariff on Crude Oil

WASHINGTON, Dec. 22.—In anticipation of a revision of the tariff at the coming session of Congress, whether it be a special session in the spring or not until next fall, Representative Howard of Oklahoma has introduced a bill, H. R. 14462, removing crude petroleum from the free list and placing it upon the dutiable list with a duty of $1 per barrel attached. Specifically he proposes the addition to the dutiable list of the tariff act of 1922 reading, "Par. 57a. Mineral oils, crude, $1 per barrel" so as to impose the duty.

When hearings are held Mr. Howard will be given an opportunity to state his reasons for putting a duty on foreign crude. Thus far Congress has never listened favorably to arguments for a duty on crude or the ordinary refined products of petroleum. The reason was chiefly that the conservationists said we should encourage foreigners to send their crude to this country and that imports of refined products were infinitesimal in volume and could have no effect upon domestic prices.

The MacClatchie Manufacturing Co., Compton, Calif., has developed an automatic cathead that is both efficient and safe. The cathead is entirely automatic, being operated by the driller.

The company states that during the three years the catheads have been in use they have not been the cause of a serious accident.

This safety feature is made possible by the fact that the breaking cable cannot become fouled and spool on the cathead causing the tongs to wind around the draw works and perhaps injuring the cathead man. The cable does not spool on the cathead, it is bolted to the breaking arm which is in the idling space when the cathead is not being used.

The cathead is operated by a rod leading from the breaking arm to the driller's lever handle. When the tongs are set on the pipe the breaking arm is in the idling space, the driller then pulls the lever, causing the breaking arm to slide onto the eccentric. This swings the breaking arm back, thus breaking the joint.

INDEX TO ARTICLES

Selected Bibliography on Petroleum Technology

Editor's Note—The brief abstracts of current literature printed below are so arranged that they may be cut apart and mounted on 3" x 5" library indexing cards. The indexing numbers assigned bring the cards into logical sequence in the files. The "Decimal Index of Petroleum Technology" gives the key to the articles. This book is published exclusively by NATIONAL PETROLEUM NEWS as a service to its readers. Price $1.00. Abstracts started April 4, 1928.

Gordon Granger

"Cross Hot Oil Recirculating Unit Makes Finished Gasoline"

National Petroleum News, Oct. 17, 1928, pp. 82-86.

New installation of Cross cracking process at the Okmulgee plant of Barnsdall Refineries Inc., has incorporated into the hot oil recirculating system whereby all of the recycle gas oil made in the cracking operations is recirculated through the system being gradually digested into only two products, namely, gasoline and fuel oil. Cross process now consists of four distinct operations as follows: 1—The cracking reaction; 2—The liberated heat zone where the fractionation and separation of some of the products of reaction take place; 3—The hot oil collection and recirculation feature of this equipment; 4—The added Gray vapor phase gasoline treating apparatus.

Flow chart accompanying article shows virgin gas oil starts at low pressure compared with older units, generally 150 or 200 pounds. It passes through two heat exchanger coils located respectively in the top of the fractionating column and evaporator tower before it picks up enough heat to be considered a suitable blending stock for the returned recycle gas oil from the bottom of the fractionating column, arriving together in the accumulator tank. An interesting scheme is described for blending these two oils in the proper proportions automatically. Summing up, the author says:

"We find the advantages of manufacturing gasoline in one operation are manifold not only in the simplicity of the described operation but by the savings effected by avoiding extra investment in acid treating equipment and rerun stills which in themselves, as all refiners know, are high cost producers because of the corrosive chemicals as well as maintenance and upkeep."

Oil and Gas in Oklahoma — 111.32

Bulletin 40, Vol. 1, Oklahoma Geological Survey

This is a collection of seven papers on petroleum and geology previously published by the Oklahoma survey. The original printings were in paper bound pamphlets; this collection is in cloth, preserving the papers in permanent form. It is the plan of the survey to publish the various chapters that have been issued as county reports on oil and gas in Volume 2 of Bulletin 40. Volume 1 contains the following chapters: "Petroleum Geology in Oklahoma," a historical sketch, by Sidney Powers; "Subsurface Distribution and Correlation of the pre-Chattanooga (Wilcox sand) Series of Northeastern Oklahoma," by Luther H. White; "Subsurface Stratigraphy of Western Oklahoma," by Frank C. Greene; "Pennsylvanian Paleography," by Robert H. Dott; "Structural Trends in Southern Oklahoma," by LaVerne Decker; "Oklahoma Petroleum—an Industrial Survey," by Charles E. Bowles; "Digest of Oklahoma Oil and Gas Fields," by Bess Mills-Bullard, a resume of the principal facts on each field in the state. The volume is well illustrated and contains excellent maps.

Robert H. Brinton

"High Pressures and Corrosive Crudes Multiply Heat Exchange Problems"

National Petroleum News, Oct. 17, 1928, pp. 88-92.

Many batteries of stills today have a total heat input of more than 50 per cent from heat exchangers before the crude ever reaches the still. Not only does this effect saving in fuel in vaporizing the crude but it also causes savings in condenser water, cooling equipment for the water and so forth. Most heat exchangers nowadays have one tube sheet free to take care of expansion and contraction of the tubes due to heating and cooling. The partial condenser of today receives the vapors as they come from the bubble tower, a mixture of steam and oil vapor. By the use of water or cold crude through the cold side of the condenser separation is secured and the condensed fractions are drained out and through the condenser box and the receiving house."

Change of cracking operations from batch or semi-continuous to continuous has made it necessary to adapt heat exchangers to cracking plants. This called for radical alteration in design. Heat exchangers and partial condensers are now in use at pressures of over 1000 pounds and temperatures of 800 to 1000 degrees F. and some engineers are talking about increasing the pressure to 3000 pounds.

Materials of construction in heat exchangers are important because of corrosion. Tubes, tube sheets, baffles, etc. are often made of Muntz metal, copper, naval bronze, monel metal, etc. These metals afford varying degrees of resistance to the attack of the various acids as well as the hot oils themselves.

It is folly to install poorly selected and designed equipment because it will only give trouble later.

Mylius, L. A. — 111.23

"Oil and Gas Development and Possibilities in East-Central Illinois"

Illinois State Geological Survey Bulletin 54.

Sub-surface data, development history, operating methods and recommendations for testing new areas in Clark, Coles, Douglas, Edgar and parts of adjoining counties were collected by Mr. Mylius in 1923 but, owing to lack of funds, was not published until a short time ago. The bulletin is accompanied by a separate map case, containing many correlations of well logs and maps of anticlinal structures.

The area considered contains all of the principal oil fields of Illinois. The entire geological section is described in detail and careful correlations of the various formations over the area are presented. There is a brief discussion of operating methods, including the experiments that have been made in increasing recovery of oil by restoration of pressure.

More Abstracts on Page 58

"Yesterday" *and* "Tomorrow" Are the Same With *Puddled* Wrought Iron Pipe

BECAUSE Reading *kneads* fiery hot pure iron in the furnace, the high quality of Reading Pipe is assured through endless tomorrows—just as it has endured for countless yesterdays.

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I See By the Paper - -

Who Wants Gasoline Tax?—Illinois Association of Highway and Municipal contractors are holding their annual convention in Chicago this week. The key note of the meeting is a new gasoline tax for Illinois.—Chicago Herald & Examiner, Dec. 10.

Page Colonel Dunn—A tank car exploded in a railroad yard near Chicago in the early morning of Dec. 3 but nobody was hurt. Officials are at a loss to account for the incident, most of the usual clues being lacking.—Chicago Tribune, Dec. 3.

Need Not Come Home—The Republic of France recently decided not to grant the request of the United States for the extradition of H. M. Blackmer, missing Teapot Dome witness. American officials have waited in Paris months for this decision.—Chicago Tribune, Nov. 28.

One Big Union (?)—The Central Plaza, a small residence hotel near the western limits of Chicago, is equipped with an oil burner but can get no oil. The place is being picketed by representatives of the janitor's union and tank truck drivers will not make a delivery while picketing progresses. The hotel management seeks an injunction while guests shivver.—Chicago Tribune, Dec. 8.

Entire Jones Estate to Widow—Entire estate, estimated at several millions, of the late George H. Jones, chairman of the board of Standard Oil Co. of New Jersey, has been left to his wife under a will thirteen lines in length which he executed Nov. 22, 1901. At that time Mr. Jones was employed as clerk by a Standard subsidiary in Oil City, Pa. at $100 a month. "I am not unmindful," said Mr. Jones who wrote the document himself on a typewriter, "of my two children, Ruth E. and Mildred M., but I am confident that they will find in their mother their best friend."—N. Y. Herald-Tribune, Dec. 12.

COALINGA, Calif., Dec. 22.—Baker Casing Shoe Co., is building an addition to its local plant to be ready to take care of additional business brought about by the development of the Kettleman Hills field, about 15 miles from Coalinga. Two lots adjoining the old plant have been purchased.

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More Abstracts Are Published on Page 56

Logan, K. H., Ewing, S. P. and Yeomans, C. D.
Bureau of Standards Soil Corrosion Studies

Bureau of Standards Technologic Paper No. 368

This is a progress report on the work the bureau has been conducting the past four years in burying pipe of many different kinds in soils varying widely in chemical constituency. Of the 14,000 specimens buried, some 2,000 have been removed for study. The authors present only the data on specimens removed, warning that they are not to be regarded as final in any sense and that much further study is required.

W. L. Rifenberick and W. L. Kallam
"Cooling Problems in Refineries and Natural Gasoline Plants"

National Petroleum News, Oct. 17, 1928, pp. 99-106.

If it is possible to obtain an average water temperature of 70 degrees F. it is believed to be cheaper from the standpoint of first cost in an absorption plant to operate the condenser cold as possible and not use a recompressor. The difference in cost between the two sizes of stabilizers will likely be less than a compressor with the attendant equipment required.

This is not advocated as always the best policy, however, because there are places where with even 70-degree water and 15 to 20 pounds condenser pressure that a considerable gasoline will escape. However, cold water is necessary in either case regardless of whether all the condensing is done in one condenser or whether the recompressor is used to extract the final quantity of gasoline. By cold water is meant water with 3 to 5 degrees of the wet bulb. In general the problem of condensing straight run gasoline is vastly easier than in a natural gasoline plant even though the pressures are lower.

To obtain the cold water the determining factors over which we have no control are the wet bulb and wind velocity. It is the design of the cooling tower and the water load that determines the water approach to the wet bulb. Tables are given showing effect of wind velocity on temperature of cooled water in a cooling tower and gasoline recovery tests at varying temperatures.

Haseman, W. P., 412.
"Profits and Proper Spacing of Wells"

Oil & Gas Journal, October 18, 1928, pp. 53, 321-322.

This paper emphasizes the importance of technical research and economic studies of potential profits to be secured by different programs of field development. Different well spacings will lead to different net profits per acre, and the selection of a program to be followed will be influenced to an important degree by the selling price of the oil and the cost of drilling.

The author gives computations based on data published in U. S. Bureau of Mines Reports of Investigations No. 2270, by W. W. Cutler and W. S. Clute, in which he assumes different development costs per acre and different selling prices per barrel for the oil, and calculates the net profit per acre for different spacings of wells. The results are presented in both tabulated and graphic form, the latter suggesting a convenient means of displaying the data in such a way as to show the limits of profitable selling prices for different well spacings and development costs.

Cartwright, R. S., 425.
"Rotary Drilling Problems"

American Institute of Mining & Metall. Engineers Technical Publication No. 145, October, 1928, 16-pages. Reprinted in Oil Weekly, Nov. 2, 1928, p. 41: Oil & Gas Journal, Oct. 18, 1928, p. 177; and in Oil Age, Nov., 1928. p. 41-45, 72.

Rotary drilling has, during recent years, received the attention of engineers who have introduced many new improvements and refinements in equipment and technique, that have greatly increased drilling efficiency. This paper contributes useful new data on several important recent developments in this phase of petroleum production technology. The advantages and limitations of automatic controls and weight indicators for maintaining a proper bit pressure and a safe limit of torque on the drill pipe, are first discussed.

Considerable space is devoted to a discussion of the properties and requirements of mud-laden fluid used in rotary drilling. Analyses of typical muds are given, and a fluid weighing 10 pounds per gallon is recommended. Barium sulphate and iron oxide are found to be useful clay substitutes, particularly in preparing fluids of high density: often as great as 15 or 16 pounds per gallon. For deep-well rotary drilling, slush pumps having a capacity of from 400 to 450-gallons per minute at 500 pounds pressure are recommended. There is need for the development of larger and heavier pumps for this purpose.

The importance of speed in drilling operations in reducing drilling costs, is emphasized. In a study of drilling time on four Oklahoma wells, the effective drilling time was found to range from 57 per cent to 80 per cent, diminishing as the depth of the well increases. Below 4,000-feet, the effective drilling time diminishes rapidly. Results of a study of reasons for lost time in drilling are given.

The relation between cutting speed and weight maintained on the bit, is discussed in detail, and results of tests are given. The bit pressure and rotational speed are reciprocal factors. Bit pressures recommended for cone and roller bits range from 23,000 to 41,000 pounds, with an 11-inch bit on 6-inch drill pipe, 38,000 pounds being most effective. Cutting speed increases with the bit pressure, being about 1-foot per hour for each 10,000 pounds of weight on the bit. For disc bits, pressures of 20,000 to 25,000 pounds are recommended. Loads as great as 300,000 pounds are sometimes recorded on weight indicators.

Three Model 30 FOAMITE Generators, with Powder Bins, arranged in parallel so their outputs can be delivered singly or severally into a common manifold.

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A twenty mile wind was blowing when the fire was started. High gravity crude oil was burning. It was ten minutes before the FOAMITE Generators were put into operation. By that time, clouds of black smoke billowed into the sky, flames roared out of the tank as from a volcano, and terrific heat radiating from all sides scorched everything within its reach.

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Two tests were run—in conjunction with a large oil company. In the first test, the *Firefoam* had to drop over 20 feet to reach the surface of the burning oil and in spite of that the fire was out in 21 minutes. In the second test, the *Firefoam* was delivered near the surface of the burning oil and the fire was extinguished in the amazingly short time of only 15 minutes. Proving conclusively that FOAMITE Generators can successfully combat large oil tank fires.

Smaller tanks can be protected equally well with the smaller FOAMITE Generators, No. 15 and No. 25. If you want the details of these two tests, or if you want an examination of your hazards, write the nearest American-LaFrance and Foamite representative. There are representatives at points convenient to all principal oil producing and refining centers. American-LaFrance and Foamite Corporation, Engineers and Manufacturers, Dept. E 22 Elmira, N. Y.

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For Extinguishing Fires

Mechanical Smeller Tells Explosion Hazard of Air-Gas Mixtures

By H. H. Hall
Standard Oil Co. of California

Presented Before American Petroleum Institute, Chicago, Dec. 3-6

TO OIL men it hardly seems necessary to offer any proof of the fact that explosive mixtures of petroleum vapor and air are sometimes found in other places besides the cylinders of an engine.

Explosion accidents are not isolated instances but have occurred with surprising frequency considering the generally high standard of safety maintained by substantially all oil companies. One of the principal contributing causes in the past has been the difficulty and uncertainty of determining the real character of various vapor-air mixtures. The sense of smell depended upon by many workmen, and to a certain extent by technicians, is a most unsatisfactory criterion. Some hydrocarbon vapors can hardly be detected at all in this way.

In the recent past the most common scientific method has been to have a chemist actually sample the contents of a container about which there was some question, analyze this sample and from his knowledge of the amount of this particular hydrocarbon necessary to produce an explosive mixture, offer an opinion as to the danger or lack of danger existing in the container. This, in turn, was quite unsatisfactory, not only because it required a considerable amount of time, but because unless a great many samples were taken one could never be sure that in remote corners of the ship or tank entirely different mixtures did not exist.

Ships' tanks are particularly noteworthy for their odd shapes and inaccessible corners. In order to be sure that no explosive mixture exists in some one of these out-of-the-way spots, it has been necessary to carry the cleaning process to a great extreme. At times, the extreme has not, however, been great enough.

The wide field of usefulness and great value of a simple instrument which would "smell" any atmosphere and tell immediately how dangerous it was has been apparent for a long time. It remained for two chemical engineers in the engineering department of the Standard Oil Company of California to actually build such an instrument. They adopted an old principle which had been suggested for the determination of similar conditions in mines but which, as far as we can find out, has never been in common use.

The principle appeared to be good and our men proceeded to actually make an instrument. This first instrument has now been in constant use for about a year. and a half and is giving entire satisfaction. About 90 others have been manufactured and used by other departments of our company and, to a limited extent, by other companies—so far without any difficulty. The instrument is easily portable and tells instantly on a plainly marked scale how near the vapor-air mixture comes to containing enough hydrocarbons to be explosive.

The compact simplicity of the apparatus is shown in Figure 1, in which one of the inventors is demonstrating its use. Figure 2 is a top view of the instrument. A hose leading to the point where the analysis is desired is attached at "A"; and the bulb "B" is used as an aspirator to draw a sample through the hose into the instrument and on out to the air. The relative amount of petroleum vapors in the sample passing through the instrument is indicated by the deflection of the needle on dial "C."

Figure 3 is a close-up of the scale on which the degree of explosibility is read.

Figure 4 shows the general principle on which the instrument works. A sample of the vapor from the space being investigated is drawn through the tube "X" in which is placed a platinum wire which is normally heated to a bright red by electric current from dry cells enclosed in the case. If the gas sample contains combustible hydrocarbons, they will burn at the surface of the platinum filament—this process being what the chemists speak of as a catalytic effect. The additional heat furnished by this combustion will raise the temperature of the filament and thus increase its resistance, which in turn will cause the pointer to move over

Fig. 1—Device being used to test hold of tank steamer for possible presence of an explosive mixture

the indicator dial ("C"), which is marked to show directly the amount of hydrocarbon vapor in the sample. To insure that there is no chance of combustion being transmitted from this reaction chamber into the space being sampled, flame arrestors ("Z") consisting of brass rods with very fine holes drilled through them longitudinally are placed on either side of the reaction chamber.

Figure 5 shows the electrical connections by which this result is accomplished. It will be observed that the indicating instrument is simply a standard millivolt meter placed across the well-known wheatstone bridge. Current flows through the bridge from the battery and is regulated by the rheostat at the proper amount to give the platinum filament the desired temperature. It will be noted that the resistances in the upper arms of the bridge are both made up of platinum filaments—one in the analysis cell and the other in a sealed glass tube full of air. This is done so that slight inaccuracy in setting the operating current will not cause appreciable error in the indication. When the filament in the analysis cell has been heated by the combustion of hydrocarbon vapors passing through this cell, its greater resistance throws the wheatstone bridge out of balance so that current flows through the millivolt meter and deflects the needle over the indicator scale in proportion to the increased resistance.

REFERRING again to the close-up view of the indicator dial (Figure 3), a further explanation of just how this dial is graduated may be of interest. Different hydrocarbon vapors must be mixed with air in different proportions to produce an explosive mixture. In the case of motor gasoline vapor, these proportions range from about 1½ per cent to 6½ per cent of gasoline vapor in air by volume. Three per cent produces about the maximum explosive mixture; this is the most desirable mixture for automobile cylinders. When the amount of gasoline vapor gets up to 6 per cent, the

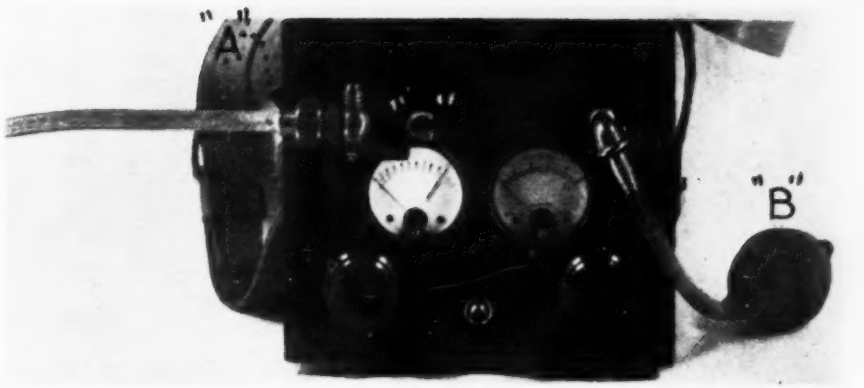


Fig. 2—Top view of test box. "A" is hose connection through which sample is drawn by aspirator bulb "B." Dial "C" records hydrocarbon content of air tested

mixture is so "rich" that it will produce a very slow muffled explosion; and above 6 per cent it will be so rich that it will not burn in a closed container no matter how many sparks or flames are produced inside the container. Such a rich mixture will,

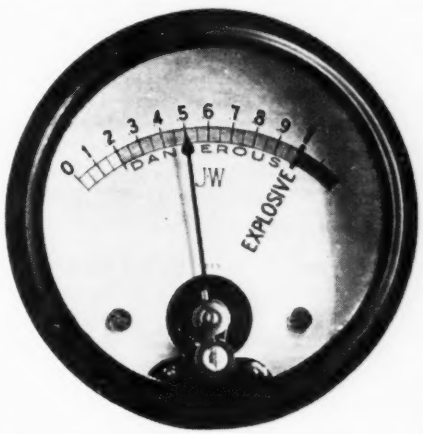


Fig. 3—View of scale used on indicator dial

of course, burn as a torch when it is expelled from the container into the atmosphere where it can mix with enough air to burn.

Down at the other end of the explosive range, when the mixture has been diluted so that it contains only 1½ per cent of gasoline vapor by volume, it will be so lean that only a weak flash is obtained when ignited. It is this lower explosive limit that is designated by "1" on the indicator scale. In other words, when the pointer on the indicator is on "1," the sample being drawn through the instrument contains just enough hydrocarbon vapor to be at the lower explosive limit. As indicated by the black part of the dial above this point, the presence of any more hydrocarbon—which will deflect the instrument pointer above 1—means that the mixture may be in the explosive range and hence dangerous.

THE scale between "1" and "0" has been divided into 10 equal parts. Thus, if the hand stands at .2, the sample being tested contains only one-fifth enough gas to be explosive. Bureau of Mines tests indicate that vapor concentrations approximately one-fifth of the lower explosive limit may be toxic for men to work in. This figure varies considerably with different individuals and with the length of time at which they may be exposed. A few breaths of mixtures considerably richer than .2 might not be harmful, but for long time exposure this is about the maximum which can be breathed without danger. Hence, this portion of the scale between .2 and 1 has been shaded to call attention to the fact that it may be unsafe for breathing, although not explosive. Below .2 the mixture will be safe both for men to work in and to use open flames.

This method of measurement gives the apparatus a unique advantage, in that it has a "universal explosibility scale." This means simply that regardless of the *kind* of gas which is present (whether gasoline vapor, heavy vapor from hot fuel or a heavy distillate, or the light gases, predominately methane, which are sometimes found in refinery tanks or around natural gasoline plants), to repeat in *spite* of any such difference, the meter hand always indicates the "nearness to explosibility." The importance of this will be realized when it is pointed out that the lower explosive limit for hexane is about only 1.2 per cent

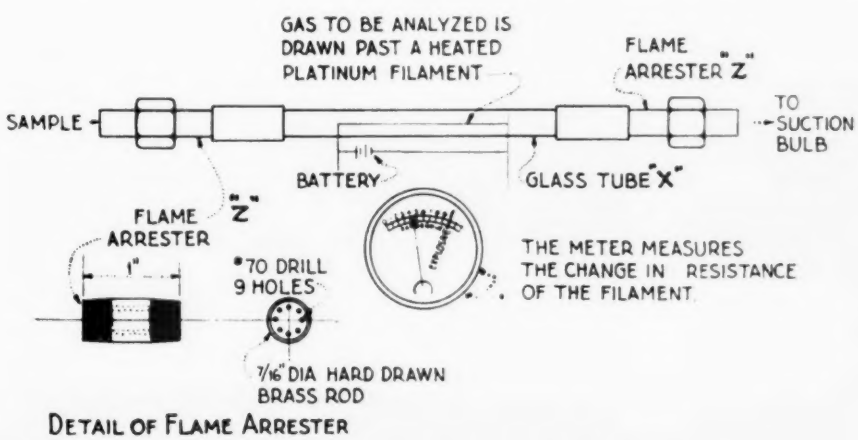
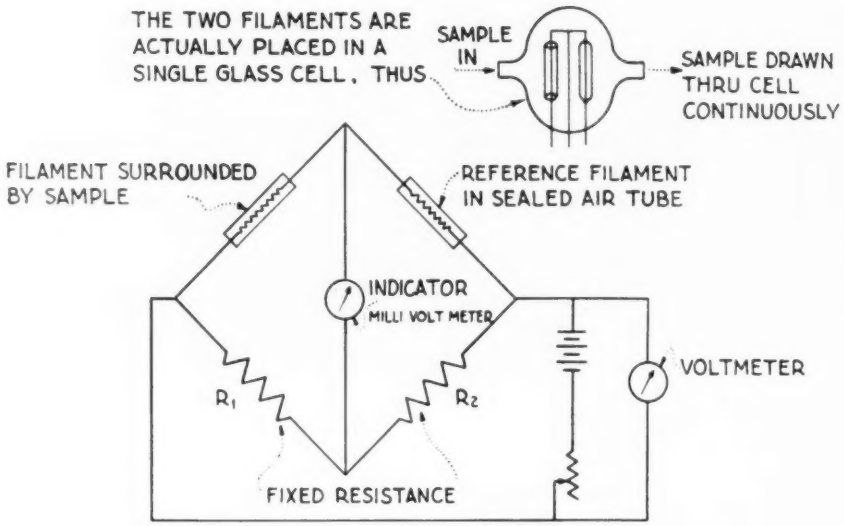


Fig. 4—Diagram illustrating principle of operation



"WHEATSTONE BRIDGE" CIRCUIT IN ELECTRICAL VAPOR DETECTOR

Fig. 5—Electrical circuit employed in vapor detector

by volume, while for methane it is six and a quarter per cent.

If the results of an analysis are reported as so many per cent of gas, it is impossible to know whether that concentration is dangerous or not unless the *kind* of gas is also known. A 3 per cent mixture of methane with air would not be explosive—while a mixture containing that amount of gasoline vapors would be violently explosive. It is usually very difficult to tell exactly what kind of gas is present in any particular place, so an instrument which makes this knowledge unnecessary has a great advantage.

It should be pointed out that the instrument is not adapted to the measurement of mixtures above the lower explosive limit. Pumping such mixtures through the instrument is likely to melt the fine platinum wire catalyst, necessitating its replacement. This is not a difficult thing to do but is some trouble and expense and results in putting the instrument out of commission until such a change is made.

Figure 1 shows the instrument being used for investigating the conditions of a tanker prior to letting men go in for cleaning operations. The hose is let down through the ullage hole and readings taken every few feet from top to bottom of tank, thus in the course of a minute or two a complete "cross-section" of the vapor conditions in the tank can be obtained. Again a sample may be pumped continuously while the end of the hose is moved about, and the existence of abrupt changes in composition, (as pockets of rich gas) readily noted. For instance, the hose may be gradually lowered into a tank while pumping, and a traverse made of the whole tank.

One other desirable feature of the instrument which has not been mentioned is that the operator can always be assured that it is in working condition. Every time the bulb is squeezed, drawing air through the instrument, the meter hand fluctuates slightly, even though there is no hydrocarbon vapor present. This little flutter of the hand proves to the operator that the machine is in operating order. No accident, such as a loose connection, breakage, burn out, etc., can render the machine inoperative without also destroying this fluctuation. This fact is a great help to the operator who uses the machine for the first few times, because he is likely to find that some space which smells very gassy actually contains less than a tenth of the explosive quantity. The sense of smell has proven entirely unreliable. Without some visual indication such as this to prove that the machine is working he might be inclined to conclude that it had broken down.

It is hardly necessary to point out the manifold uses of such a device. While primarily intended to be used as an aid in tank cleaning, it also finds use in general survey work, in routine testing of cargo space, between decks, etc., on ships, and at numerous points around refineries. One of these instruments was used at Santa Fe Springs during the long battle to subdue the burning Getty No. 17 well. Here it served to check the condition of the air in the tunnel leading down to the casing, as a protection against the accumulation of dangerous quantities of gas, which is occasionally found in pockets at that depth.

As it is primarily a safety device, Standard Oil Company does not plan to exploit it in any way. In order to make it available to other oil companies, we have authorized the inventors, Messrs. Williams and Johnson of 1118 Guinda street, Palo Alto, California, to make up such instruments as are requested of them at a nominal profit to themselves. This means that the instrument as now made will sell for about $120.

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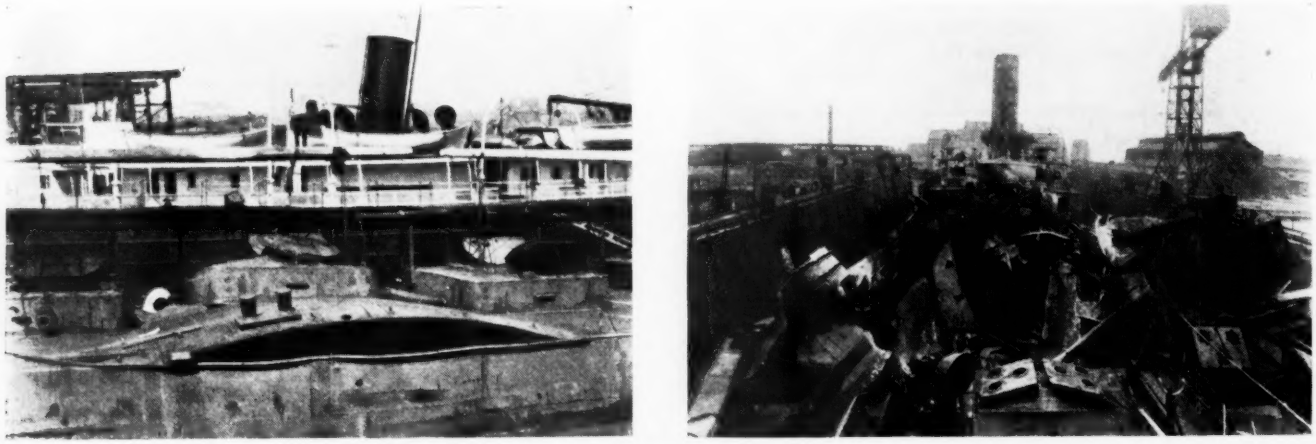

Fig. 6—Effects of igniting an unsuspected explosive mixture in a tank steamer

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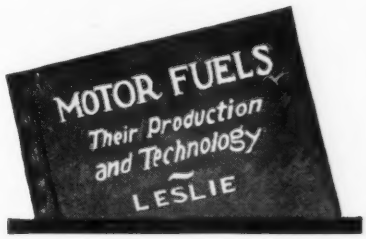

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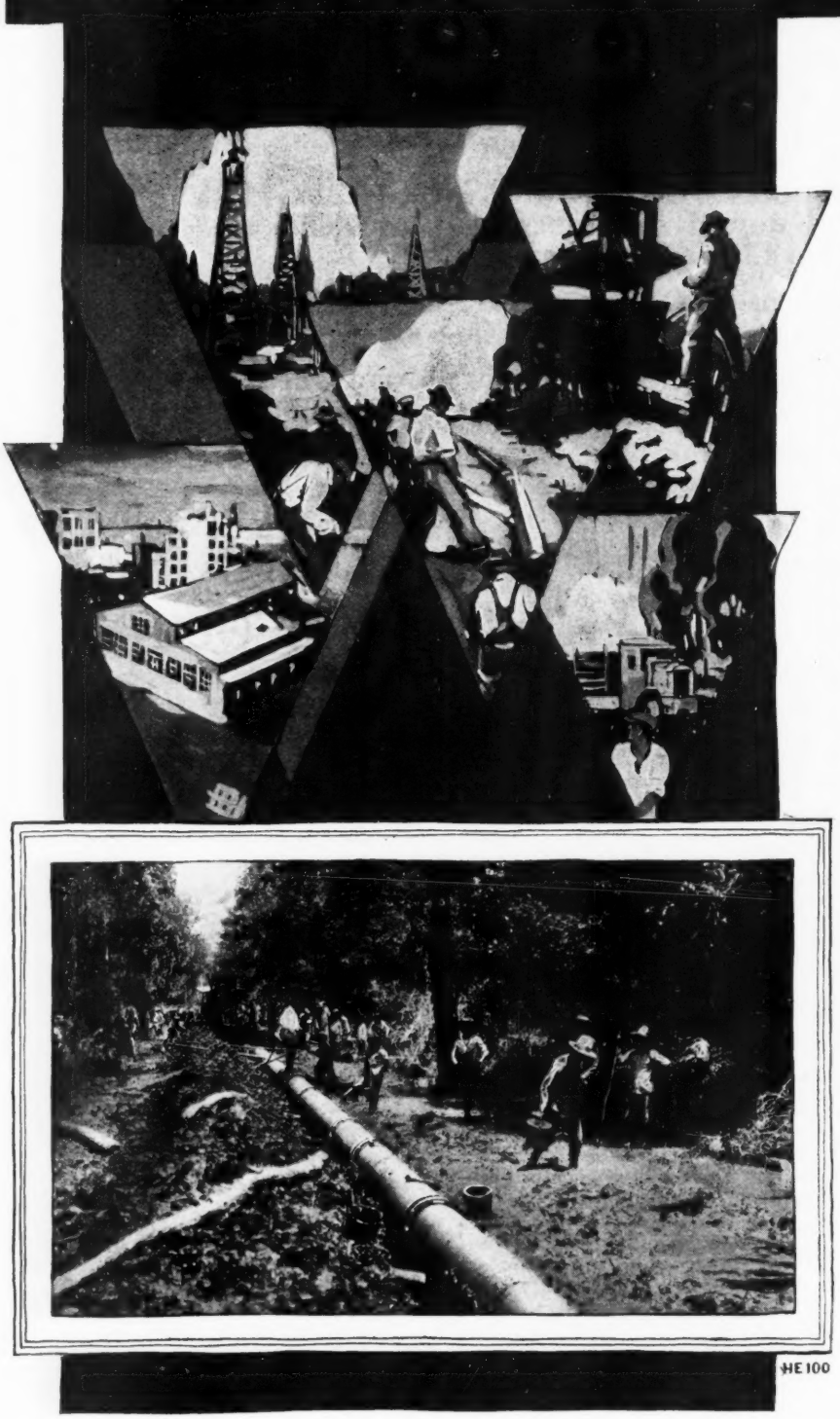

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Accounting Methods for Refineries

Article Eleven

General Conclusions; Summary of the Series of Articles

By Henry W. Ralph

In his last previous article, No. 10 in the series, which appeared on page 67 of the Nov. 21 issue of NATIONAL PETROLEUM NEWS, *Mr. Ralph discussed the refining and selling flow chart and what they mean to the refiner as a means of telling him how much his operations cost per unit of oil put through the plant.*

In the accompanying article, the last of the series, the author defines the service that must be obtained from accounting systems if they are to be worth while. He tells what the art of keeping accounts means and describes the set-up of accounting systems for refineries in general.

IN THE preceding articles under the above general title the word accounting has been construed more broadly than is general. It has been considered as a service to management performed by records and reports.

The development of the subject has been consistent with the viewpoint of management. In the earlier articles there were pointed out the advantages obtainable by clearly defining the responsibilities for the separate functions of manufacturing, of selling, of control of throughput, inventories and for coordination.

Later articles discussed the benefits to be derived in the manufacturing end from satisfactory labor control, and certain types of records and reports which were helpful in that work; and in the same manner the topics of stock control and production control were discussed.

Next there was considerable discussion as to the kind of operating reports and cost records that were valuable for stills and processing plants. These subjects led naturally to the question of flow charts which was discussed in the preceding article.

This article, the concluding one of the series, will be devoted to a discussion of the records that are more generally considered to be accounting records, including the records that are supposed to be the particular field of the book-keeper.

The making of records of any kind is a worthwhile act for the reason that future reference to such record of facts is expected and the design of any record will be the most suitable when the combination of the effort of making the record and the effort of finding the useful facts contained in the record shall be the minimum.

If this be true, it is evident that the kind of record that should be made by any individual or any organization must take into consideration not only the present effort but the future use to be made of such record.

There are two corollaries to the above statement which are considered self-evident:

(a) If the initial record of a transaction can be so satisfactorily made that it will serve as an ultimate record—and build into useful summaries—there is no better method of making such an initial record.

(b) The record which may have been satisfactory for one type and size of organization may need considerable revision if the size or type of organization is changed. This may be modified by the statement that for certain types of transaction the method of making proper records has become so satisfactorily standardized that it should be followed by all organizations regardless of type or size.

A knowledge of the size of the plant and the operations carried on is essential in outlining the kind of records that should be kept at any particular plant.

AS WAS intimated in the preceding article, the first distinction usually made in refineries is between so-called productive and non-productive activities. The productive activities are those which change some of the physical characteristics of the products; and the non-productive are those which are necessary to enable the productive activities to be carried on whether the function is that of supervision, co-ordination and control; supplying service such as water, heat, electricity; transporting between departments or in departments, or clerical activities.

Both of these—the productive and non-productive—are subdivided by departments and the first requirement for good accounting is that the sub-accounts in each department shall be kept as clean as possible.

The first handling of expenditures in the company records should be consistent with the method of payment. All salaries and wages should be charged to payrolls; all supplies to appropriate supply sub-accounts; and raw materials to appropriate material sub-accounts; expenses to appropriate expense control accounts, etc.

Next, on the basis of appropriate periods, charges should be made to all departments from payroll. On the basis of original inventory, purchases, final stocks—or adequate stock records—charges should be made to all departments for supplies; and similarly charges should be made to all departments for raw materials. Expenses can often be distributed direct, but only when periods of payment coincide with accounting period.

IT IS usual to consider that the use by productive departments of steam water, electrical energy is a direct charge to operation and that the total of the expenses for the period for these items shall be spread over the productive departments as well as the benefitted non-productive departments. The defect of this method of handling is that there is not automatically built up a picture of either unit costs or of efficiency of these non-productive units.

If definite rates were established for these items and such rates had some relation to the season, the type of product, the throughput; minimum and maximum charges were established and the balance resulting from the credits to these non-productive departments and the actual expense charged appeared as a profit or loss, both these objectives would be realized.

A good departmental set-up of expenses would show the following grouping of expenses:

Direct—those that vary in proportion to throughput.

Operating labor.

Operating supplies (appropriate sub-accounts).

Semi-direct—those that vary somewhat with throughput but not proportionately.

Operating labor.

Steam, water, electricity and other supplies.

Repairs.

Labor.

Supplies.

Indirect—those that are practically fixed regardless of throughput, depreciation, taxes, insurance, overhead, etc.

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will be entered the facts necessary to prepare a statement of the condition of the business at any moment. Such a statement of condition will ordinarily be prepared at periodic intervals, since that permits such statements to be prepared most readily and comparison (the only guide of relative accomplishment) is thereby made much easier.

PRACTICALLY all business enterprises should be provided with a general journal. It will provide in abbreviated form an accessible record of separate transactions. As the method of handling and preserving the original documents that form the basis for journal entries becomes more formal and precise, the detail entered in the journal becomes less and less. Some organizations, in fact, have dispensed entirely with its use.

For both the general ledger and general journal it is almost a rule that the larger the organization the narrower will be the scope of entries which will be entered in detail in these books. The general ledger will become in some cases merely a number of controlling accounts, each controling account covering one or more subsidiary ledgers. The general journal will be broken down into a series of journals. The most common of these are the purchase journal, the sales journal, the cash book.

As a matter of convenience and of least expense it is well to have all of the books of the loose leaf type with an acceptable binder. In most companies it is well to standardize on a medium size sheet and purchase all of the general books of this size. Many of the required forms can be purchased in standard rulings and if there is sufficient volume of any particular type of transaction it is neither difficult nor expensive to have special sheets of this size printed. Many small organizations use one binder for all of their bookkeeping books.

The number of binders that should be used by an organization will depend on the number of individuals engaged on such work. It will always be found inconvenient at particular periods if two individuals have to make use of the same book. For the ordinary person engaged on clerical work it will be an advantage to have two or more books in use, the number being dependent on the character of the work and the ease of physical manipulation.

The use of a sheet with many columns is very seldom advisable. The only case in which it is really effective is when entries are made on each line in several columns.

The use of single ledger sheets for individual expense accounts and similar data is likewise very seldom advisable. The labor of making entries and of making summaries that will be informative is excessive.

If loose leaf records are used, and a sheet approximately 11 by 14 inches adopted as standard, it will be possible to buy standard sheets in small quantities to take care of any normal requirement. Ledger sheets, journal sheets, cash sheets, and other standard rulings for purchase journals and for sales journals can be purchased as required.

When there is sufficient volume of work so that a specially prepared sheet will save enough time so that the saving of clerical effort more than compensates for the cost of the special sheet it can be made by the printer to fit the standard binder.

If a business organization is sufficiently small so that all the records can be handled by one person it will be found possible to devise a single record which will serve for all purposes; but this will be inadvisable except in those rare instances in which the owner or manager is a competent accountant and handles all the detail work.

With an increase in volume of business the first development will usually be a sales journal. This is merely a refinement of certain entries in the general journal.

NEXT in order will be a cash book. This is also a subdivision of the general journal. It will usually be found advisable to make separate sheets—one for cash receipts and the other for cash disbursements.

The next development is likely to be a customer's ledger, a subsidiary of the general ledger and controlled by an account in the general ledger.

The use of an accounts payable ledger is not advisable in many organizations. Payment for goods received is usually made by means of a company voucher and it is much more informative to record purchases by class of commodity and to make notations on the purchase journal or the expense register to cover the facts of payment than to make postings to a vendor's personal account.

The fact that is of operating interest is the amount of money owed, rather than the names of the persons or firms to whom it is due.

The proper method of establishing the kind of records that will be most suitable is to decide what kind of information is most informative for the operating force and to make the particular kind of record that is most suitable for that purpose and then arrange the columns on the general books which will give the easiest control of these subsidiary records. For an ordinary organization it will be found that an expense register, a supply ledger and a raw material ledger will be desirable.

Sales will probably require a sales journal. It will have a total column to establish the charges to "accounts receivable" and establish control figures and as many adidtional columns as are necessary for the various classifications of goods sold.

The volume of work and the number of clerks engaged on the work must be considered when deciding whether the voucher register shall be combined with the cash disbursement sheet. If the volume of work is large it is best that they be kept entirely separate and it may happen that the volume of work will be sufficient to require a card index of vendors as an additional safeguard against the duplicate payment of bills.

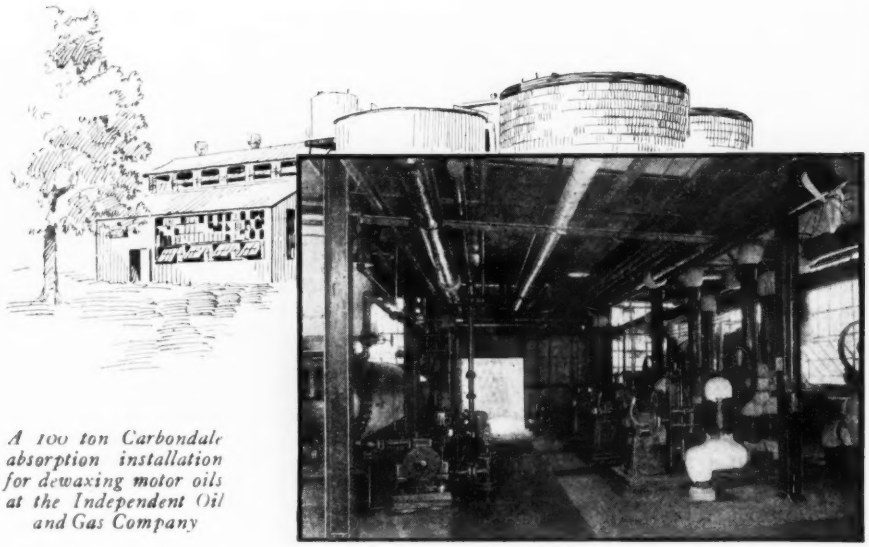
For a large organization it would probably be essential to have a standized purchase order with several copies. A small organization may place orders so infrequently that they never make a written order except as same may be required by the vendor. A large organization may find it advantageous to use a special receiving ticket for every article received and perhaps even supplement this by a printed tally ticket that is used for certain commodities. The small organization may use no similar record other than notations on the vendor's invoice.

A large organization may even have several types of standard purchase orders—such as the purchasing agent's order form, a field purchase order, a local office order and a plant local order. The purchasing agent may have standard forms on which he makes his requests for quotations. He may maintain a file by vendors of his purchase order; and a file by commodity of his purchases—and a file by commodity of quotations received. The amount of detail that it pays to standardize is often a question of volume alone.

Any form that has been standardized must always be of sufficient value to justify its existence. The more complications that may arise in the handling of any particular transaction the greater the need for a form to prevent confusion arising. The fact that a form seems complicated to some individual who is unfamiliar with its use is no reason for condemning a form.

THE acid test is this; is it convenient for the men who make use of the form and does its use give results which more than compensate for its cost and the effort necessary to make use of it? It is not unusual for an organization of only moderate size to have in use 1000 separate forms, each one of which is practically essential to the easy and routine transaction of its regular business.

Still another thought must be brought out in connection with the subject of accounting records and reports. There is a continual change going on in the methods of manufacturing and selling and in the character of office appliances which are available to make the necessary records and develop the significant facts.



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Filters . . . Use them

EFFECTIVE and economic treatment by filtration is the solution to many refinery problems.

Contract work, doctor solution treatment, residuum treatment are but a few of the several solved by either the Sweetland or Kelly Pressure Filters.

For further details regarding the application of filters in the refineries, consult with our nearest office.

Oliver United Filters Inc.

Successor to Oliver Continuous Filter Co. and United Filters Corporation

Factories:
Oakland, California Hazleton, Pennsylvania

Branch Offices:
Los Angeles, 108 W. 6th St.
San Francisco, Federal Reserve Bank Bldg.
New York, 33 W. 42nd St.
Salt Lake City, Felt Bldg.
Chicago, 565 W. Washington Blvd.

The method of making records which is remarkably good today will be far from good in the near future.

Unless the scheme of reports and records is continuously revised so that the work is done with the minimum of effort and it will produce the maximum of significant facts in the shortest possible time, the dollars which are spent for accounting effort are not bringing in their full return.

The earning of profit is dependent on the utilization of money in such a manner that it will bring the maximum of return and that means that it must sometimes he invested in new equipment, sometimes must be invested in inventories, sometimes used for selling expenses, sometimes for advertising, sometimes used for clerical effort.

THE only way to know how each dollar will bring maximum return is to know what return is being obtained from the money previously expended for these various purposes. There is no way of finding out except by adequate records.

Henry Ford, operating the most gigantic organization ever assembled under individual control, has been quoted as saying, in effect, that the most important point is to make a product that is exactly right and then to concentrate on making it as cheaply as possible, that the selling will take care of itself.

He obtains minimum manufacturing cost by making machines that are largely automatic in operation and operating them continuously.

The question arises whether the same principle will produce profits in a refinery. There is no question that it will; and that it has in the past; but the principle will have to be modified according to the circumstances prevailing in the business.

If you have in your refinery a process which is the embodiment of the most efficient method of performing a particular operation and the production is precisely geared into your manufacturing program and with your selling commitments, then the way to obtain the maximum profit is to operate that section of your plant to its maximum capacity.

If, however, the process is capable of several variations and the particular variation which is most profitable is a function of the market prices of several commodities; and still the selling commitments require an operation other than the most profitable, it will require the exercise of excellent judgment on the basis of as detailed and precise facts as can be obtained to develop satisfactory profits.

The earning of profits, as stated above, is dependent on the profitable utilization of capital both fixed and liquid. If money is invested in a piece of equipment, that equipment will require, before it can earn any profit, that enough material be processed so that the total increase in the value of

product be sufficient to cover not only the direct expenses of operation but also the depreciation of the equipment and the interest on the money invested.

With notable exceptions, depreciation on equipment is practically the same whether idle or in use. Generally speaking, therefore, it is advantageous to operate equipment whenever the actual expenditures for labor, supplies, current repairs, raw materials, etc. are not more than the value of the finished product. The operation may be a losing one but at least a portion of the fixed charges will be earned.

If the closing down of a plant would have an effect on prices so that profitable operation would be possible at a later date, the decision to operate will have to be based on the method of operation which will, over a long period of time, develop the largest earnings.

It is true that if the output for the entire petroleum industry were to be curtailed there would result an advance in prices, and these high prices would result in more profit for refineries. Each organization, however, is confronted with the problem of earning profits on its own capital, and it is practically compelled to keep on operating until the actual cash outlay exceeds the income and to continue its struggle for existence until such time as conditions improve and profits are earned or until the time when lack of capital prevents it from continuing to manufacture.

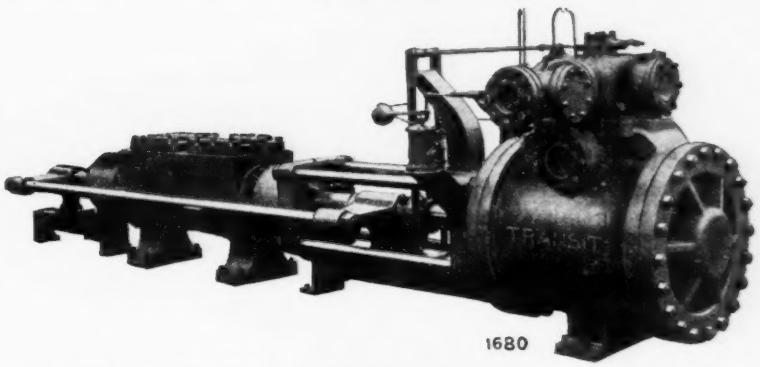
IT IS not to be expected that in the petroleum industry all organizations will earn satisfactory profits. Some organizations are operating under conditions so much more favorable than others that they will earn profits even when indifferently managed.

In general, however, those organizations will make satisfactory earnings which are best managed: that is, those which are able to perform a better service than others perform; those which render satisfactory service and spend less than others in so doing.

In particular, those organizations will profit most which on the basis of facts that are discovered concerning operation, whether from their own or other's experience, are the first ones to take advantage of those facts in their operation. That is a condition that exists in all lines of business.

In closing, the author desires to express a hope that he has in his discussion presented facts in such form that they are available for definite use, for that was his ultimate purpose. He wishes to express his appreciation for the assistance he has received in certain parts of this work from Mr. H. Fisher, chief accountant of the Tidewater Oil Co., Bayonne refinery.

An Invitation



REFINERS who want to get all the facts on the Hot Oil Pump question, we believe would do well to visit our shop and see with their own eyes what is going on in the hot oil pump department. This December or January would be the very best time.

We will show you how they are made, and explain why they are made as they are.

A little time spent this way will give you a better idea of TRANSIT Hot Oil Pumps than reading a whole book concerning them.

NATIONAL TRANSIT
Pump and Machine Company
Oil City, Pa.

New York Cleveland Pittsburgh Philadelphia
Los Angeles Tulsa Houston

Fig. 715
Jenkins Bronze Fire Line Angle Valve

Fig 707
Standard Bronze Underwriters' Gate Valve, Pattern Hose with boss.
Sizes 1½ and 2½ inches

Sure to respond to a sudden call

Jenkins Fire Line Valves stand by in case of emergency, and are fully worthy of their important trust. They hold 250 pounds water pressure, and have been tested to 500 lbs. pressure.

When a Jenkins Fire Line Valve is closed, there is no leaking at the seat, tight contact being assured by a Jenkins Renewable Disc. There is no corrosion, and no sticking when the valve is opened; a full flow is provided instantly.

The iron hand wheel is enameled red, to denote the valve's purpose, and to make it easy to locate.

JENKINS BROS.
80 White Street ..... New York, N. Y.
524 Atlantic Avenue ..... Boston, Mass.
133 No. Seventh Street ..... Philadelphia, Pa.
646 Washington Boulevard ..... Chicago, Ill.
JENKINS BROS., Limited
Montreal, Canada *London, England*

Always marked with the "Diamond"
Jenkins Valves
SINCE 1864

Visiting Around the Refineries

By Paul Truesdell

National Petroleum News

REAL effort to get the facts concerning the possible safe limit for sulfur in gasoline is indicated in a questionnaire being sent out to refiners by the Universal Oil Products Co. The questionnaire asks each refiner the sulfur content of his crude, the field from which produced, the sulfur content of his straight run gasoline, his cracking stock, his pressure distillate and his refined cracked gasoline.

Information on any tests for sulfur corrosion that may have been run on automobile engines is requested, with conditions of the test and results. This effort to bring out the facts concerning sulfur is praiseworthy. It is stated in the letter of the Universal to refiners that, "It is the general consensus of opinion that the expense involved in making motor fuels meet the present sulfur specifications are not justified." I think this statement may be questioned. There are many technologists who believe the expense unjustified but there are many others, whose interest lies all in the direction of abolishing the sulfur limit, who are seriously opposed to doing so.

I think also that the data gathered will be held as inconclusive if only refiners are consulted. The automotive technologists also should be asked for their experiences with sulfur, the work they have done on the problem and their viewpoint.

To bring about a change in government sulfur requirement, the technical committee of the Federal Specifications Board would first have to be sold on the proposition. If the technical committee recommended a change to the board, the recommendation would most likely be accepted. Government specifications, of course, are followed exactly by many states and more or less by the trade generally.

Before the technical committee would recommend abolishment or widening of the sulfur limit, it would undoubtedly have to be shown very conclusive evidence, free from any suspicion of bias, that the change would do no harm to the country's millions of automotive vehicles.

It is no use for refiners to try to sell on a large scale, an automobile fuel or lubricant that the automobile engineers do not approve. Because of the vast grief that lights upon them if their cars fail, for any reason whatever, to give satisfaction in the hands of the public, they will fight anything they think may make trouble for their customers. Who can blame them?

Refiners and automobile engineers ought to get together on this matter, study the results of tests that have been made, weigh and analyze the evidence and then present a joint proposition to the Federal Specifications Board.

* * *

THE value of a plant fire fighting organization was illustrated in a recent fire that did considerable damage to the Coraopolis, Pa., refinery of the Waverly Oil Works Co. The fire was caused by sparks from a switch engine. The refinery departments were shut down as far as possible so all available men could fight the fire. The plant fire brigade was given very valuable help by the volunteer fire department of Coraopolis. The warehouse, some small storage tanks and their contents and part of the loading rack were destroyed. The company's business was not interfered with, however, the plant being in full operation within 48 hours after the fire was out.

* * *

PRIMROSE REFINING CO., Wichita Falls, Tex., has recently installed four new bubble towers to get more efficient fractionation for the manufacture of special naphthas in which the company specializes. About a year and a half ago the company installed a Widdell Engineering Co. pipe still of 2000-barrel a day capacity, with fractionating tower designed to take off special naphtha cuts. It is to supplement the pipe still unit that the new towers were installed.

A letter from the company says:

"We are making rubber solvent, varnish makers' and painters' naphtha, Stoddard solvent, 68-70 350 end point aviation gasoline and the usual run of kerosene, gas oil and fuel oil.

"The new bubble towers were designed by our refinery engineer, J. B. Joyce, and Mr. Koch of the Winkler-Koch Engineering Co., Wichita, Kans. The work has been done with our own men under Mr. Joyce.

"While the capacity of our pipe still is about 2000 barrels a day, we have only been running from 1000 to 1200 barrels a day the past summer."

This action by the company was due to a policy that is being followed by many of the western refiners of keeping down their refinery runs in line with market conditions.

* * *

WORKING over of the plant of the Hutchinson Oil Refining Co. at Hutchinson, Kans., is about completed, according to E. F. Borgolte, president of the Security Petroleum Co., Kansas City.

Mr. Borgolte, whose company markets the output of the refinery, states that the plant has been enlarged considerably. It now has a capacity of about 3000 barrels a day. Trumbull refining units have been installed, Mr. Borgolte says. A. Frederickson is president of the company.

* * *

AMERICAN refinery equipment has found extensive use in British oil refineries, according to Dr. A. E. Dunstan, chief chemist of the Anglo-Persian Oil Co., particularly in the refineries of his company. In conversation at the recent meeting of the American Petroleum Institute in Chicago, Dr. Dunstan mentioned that in the Anglo-Persian refinery in Wales, there are Foster-Wheeler pipe stills, Kellogg-Cross cracking equipment, Dubbs cracking stills, Badger fractionating towers and Braun coolers and heat exchangers.

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From an article by W. T. Ziegenhain in
The Oil and Gas Journal, issue of November 1, 1928

"The solution of the fuel oil problem seems to lie between cutting crude runs or building cracking units. The former offers immediate relief, while it is generally realized cracking operations are very profitable."

When sales of fuel oil at prices of 5 to 7½ cents below the market are noted, as they are today, the solution would seem to be the building of cracking units – Dubbs Cracking Units Meanwhile, refiners who are now operating Dubbs units are profiting mightily from the other fellow's embarrassment

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

Roanoke Dealers Advertise They Are Posting Prices

CLEVELAND, Dec. 22

FULL page newspaper space was taken by the Roanoke Petroleum Marketers' Association, an organization of jobbers and dealers in Roanoke, Va., to tell the public that it had adopted the section of the Virginia Code of Ethics that pertains to the posting of the prices of gasoline and motor oils and adherence to the posted prices without discounts.

The text of the full page advertisement which appeared in the Roanoke Times early this month follows:

"A JOINT AGREEMENT
"Between Gasoline Tank Car Purchasers

"Whereas: The Federal Trade Commission on March 22, 1928 issued a statement setting forth the rules formulated as a result of the trade practice conference of the petroleum industry in the state of Virginia, held at Richmond, Va., May 25, 1927, under the auspices of the Federal Trade Commission; and

"Whereas: Rule 6, Group 2, of said statement provides as follows: 'RETAIL PRICES: Operators of service stations, filling stations, curb pumps, and bulk plants serving consumers shall conspicuously post the prices at which gasoline and motor oils shall be sold to all consumers at the posted price. There shall be no discrimination in prices between consumers.'

"Be it therefore resolved: That we, the members of the Roanoke Petroleum Marketers' Association, desiring to comply with the rules as set forth in the statement of the Federal Trade Commission, hereby subscribe to the above provision and signify our purpose to adhere thereto.

"Be it further resolved: That the rules, including Rule 6, be put into immediate operation and that a copy of these resolutions be given the newspapers of the city for publication."

The advertisement was subscribed to by S. G. Vest, Blackwell & Vest; John A. Lucas, Lucas Filling Station; P. P. Hunter, The Elmwood; H. F. Stoke, Stoke Oil Co.; T. D. Woodson, Whiting Oil Co.; D. C. Morrison, Motor Car Equipment Co.; O. M. Dickerson, Roanoke Auto Mart; J. E. Boland, Dixie Oil Co.; L. P. Cheatham, Roanoke Filling Station; J. P. Vaughan, Downtown Service Station.

V. F. Bond, Bond Bros. Service Station; H. W. Wells, Wells Gas & Oil Co.; Alex Polas, Alex & Alex Filling Station; F. M. Howell, F. M. Howell Filling Station; J. F. Enloe, Roanoke Battery & Electric Co.; W. M. Tinsley, Harvey System Standard Gas & Oil Supply Co.; R. T. James, Crystal Gas & Oil Co.; J. L. Wells, Wells Filling Stations, and Ira F. Walton, Walton's Service Station.

The action of these Roanoke gasoline and oil marketers is an effort at solution of a market condition that has been one of the worst in Virginia, if reports of a year ago at the Norfolk convention of the Virginia Petroleum Marketers Association truly pictured conditions in Roanoke. It had been difficult to interest most Roanoke marketers in the marketing code, it was reported at the Norfolk meeting, or even to interest them in association work.

New Stations Building

Note: Material used in this column is principally taken from newspapers. NATIONAL PETROLEUM NEWS assumes no responsibility for its accuracy.

Peaster, Tex.—W. R. Lanier, filling station.

Hillside, N. J.—Bennett Service Stations Co., filling station.

New Burn, N. C.—The Texas Co., filling station.

Eau Claire, Wis.—R. F. Sortomme, filling station.

St. Paul, Minn.—J. A. Robinson, filling station.

Raymond, Minn.—Geo. W. Kirkeby, filling station.

Minneapolis, Minn.—W. H. Ryerse, 2439 Bryant av. S., filling station.

Minneapolis, Minn.—Patrick Tierney, filling station.

Minneapolis, Minn.—Syver Loe, 3024 Franklin Ave. E., filling station.

Grand Forks, N. D.—A. T. Skarsbo, filling station.

Salisbury, N. C.—P. E. Lewis, filling station.

Orlando, Fla.—Firestone Tire and Rubber Co., filling station.

Portland, Me.—Dartmouth Realty Co., filling station.

Denton, Md.—The Texas Co., filling station.

Carrollton, Mo.—Campbell Motor Co., filling station.

Springfield, Mo.—The Texas Co., 4 filling stations.

Navasota, Tex.—The Volash Co., filling station.

Manhattan, Kans.—Phillips Petroleum Co., filling station.

Lakin, Kans.—White Eagle Oil Co., filling station.

Arkansas City, Kans.—The Phillips Petroleum Co., filling station.

Burlington, Kans.—Cities Service Oil Co. of Tulsa, filling station.

Texhoma, Okla.—Consumers Fuel Association, filling station.

Arkansas City, Kans.—Sinclair Refining Co., 45 Nassau St., New York City, bulk station.

McPherson, Kans.—Glen McCoy, filling station.

Spencer, Ind.—Chub Thomas, filling station.

Stratford, Conn.—Standard Oil Co., filling station.

Sarasota, Fla.—Gulf Refining Co., filling station.

Austin, Tex.—W. T. Caswell, filling station.

Wynot, Neb.—Mr. Jurgens, filling station.

Atlantic City, N. J.—Gulf Refining Co., filling station.

Cincinnati, O.—Ninth-Walnut Real Estate, Inc., filling station.

San Francisco, Calif.—Associated Oil Co., filling station.

Troy, N. Y.—Beacon Oil Co., Everett, Mass., filling station.

Washington, C. H., O.—Refiners Oil Co., two filling stations.

Des Moines, Ia.—E. E. Casady, 1611 Grand Ave., filling station.

Parkersburg, W. Va.—Storck & Smoot, filling station.

Stephenville, Tex.—Stephen Bros., filling station.

Frederick, Okla.—Charley Brunk, filling station.

Davenport, Ia.—American Petroleum Co., filling station.

Marion, Ill.—Mid-Continent Petroleum Corp., filling station.

Hillsboro, Tex.—D. A. Wood and L. Walker, filling station.

Elwood, Ind.—Erman Copher, filling station.

Savannah, Ga.—American Oil Co., 811 Wheaton St., filling station.

Cherryvale, Kans.—Cities Service Oil Co., filling station.

Connellsville, Pa.—Mrs. John Dugan, Jr., filling station.

Winston-Salem, N. C.—George W. Flynt, 928 Davie Ave., filling station.

Verona, N. J.—Calley Land Co., filling station.

Chillicothe, Mo.—Mid-Continent Petroleum Corp., filling station.

Hutchinson, Kans.—Phillips Petroleum Co., filling station.

Hastings, Neb.—Continental Oil Co., warehouse and filling station.

Stroud, Okla.—James E. Gray, filling station.

Dallas, Tex.—Hopkins-Crandall Co., 224-6-8 Harwood, filling station.

Atwood, Kans.—George Harmon & Son, filling station.

Rhodes, Ia.—P. W. Andrew, of Nevada, filling station.

Manhattan, Kans.—Phillips Petroleum Co. of Wichita, filling station.

Bardstown, Ky.—Mid-Continent Petroleum Corp., filling station.

Bellaire, O.—W. R. Phillips, filling station.

Willow Glen, Calif.—The Texas Co., filling station.

Boyes Springs—Dr. Alan M. Thomson, Santa Rosa, Calif., filling station.

Manchester, N. H.—Perrault & Labonte, filling station.

Albuquerque, N. M.—Philip Hubbell, filling station.

Waterbury, Conn.—Clear Oil Co., filling station.

Seattle, Wash.—Standard Oil Co., filling station.

Seattle, Wash.—Union Improvement Co., filling station.

Youngstown, O.—Frank L. Steinfurth, filling station.

Mt. Vernon, N. Y.—A. E. Barbarisi & Son, filling station.

Mercersburg, Pa.—James L. Myers, filling station.

San Antonio, Tex.—Humble Oil and Refining Co., filling station.

Ipswich, Mass.—Quality Oil Co., filling station.

Tuckahoe, N. Y.—Westchester County Park Commission, filling station.

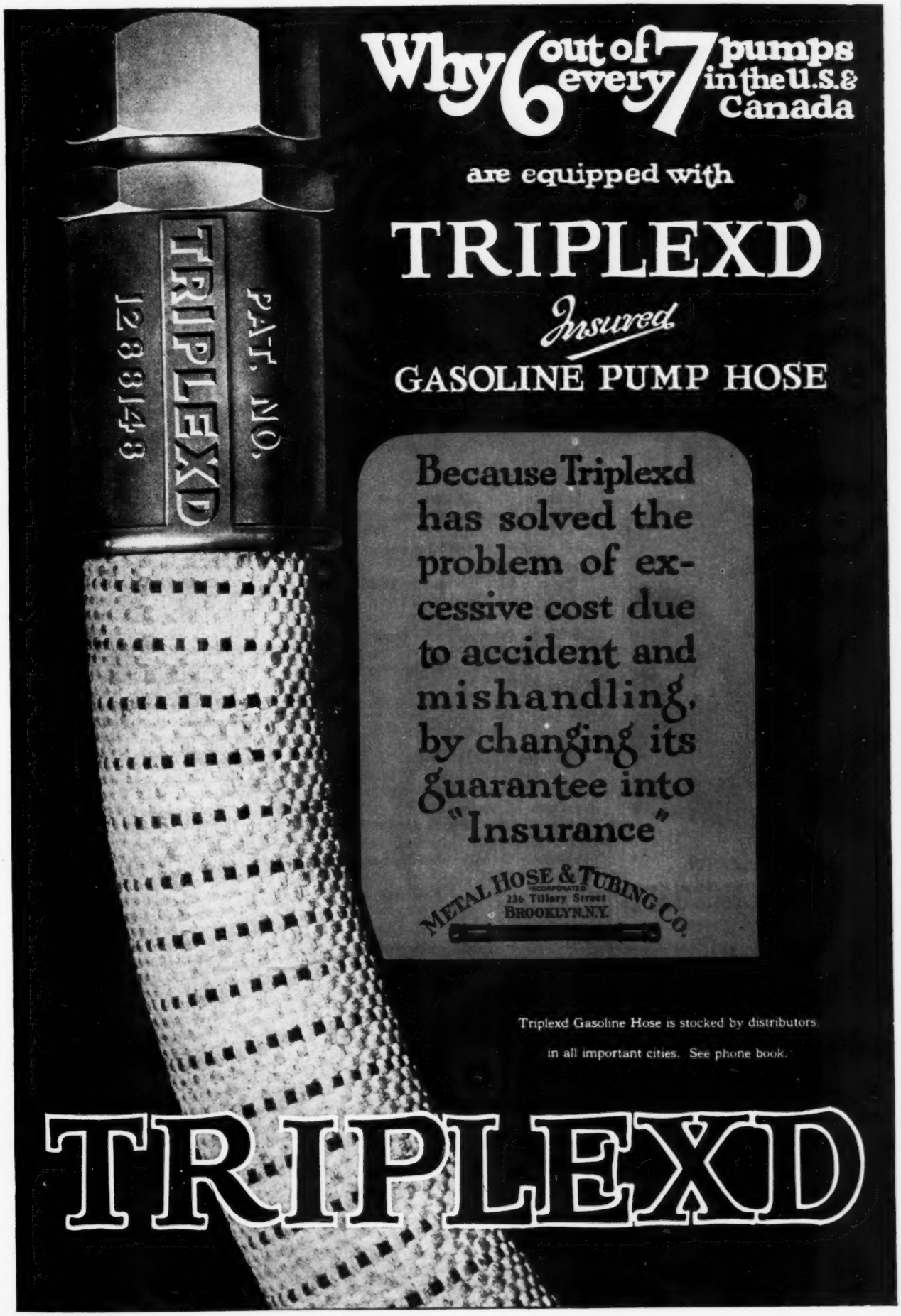
Foreign Opportunities

Reserved information may be obtained from the Bureau of Foreign and Domestic Commerce, Washington, and its district and cooperative offices by duly registered firms and individuals upon written request by opportunity number. The Bureau does not furnish credit ratings or assume responsibility as to the standing of foreign inquirers; the usual precautions should be taken in all cases, and where no references are offered it does not necessarily imply that satisfactory references could not be given. Correspondence may be in English unless otherwise stated.

35199.—**Lubricating oils and greases,** Adelaide, Australia, purchase or agency.

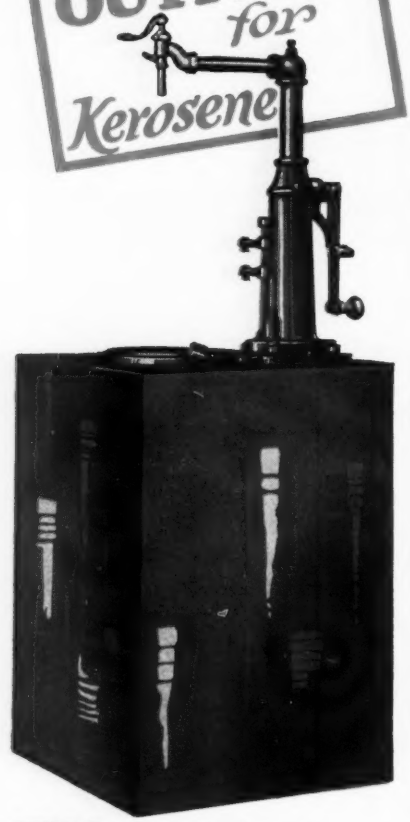
34985.—**Motor fuel and diesel oil,** Trieste, Italy. agency.

34998.—**Paraffin,** Milan, Italy, purchase or agency.


Why 6 out of every 7 pumps in the U.S. & Canada
are equipped with
TRIPLEXD
Insured
GASOLINE PUMP HOSE
PAT. NO. 1288148
TRIPLEXD
Because Triplexd has solved the problem of excessive cost due to accident and mishandling, by changing its guarantee into "Insurance"
METAL HOSE & TUBING CO.
INCORPORATED
236 Tillary Street
BROOKLYN, N.Y.
Triplexd Gasoline Hose is stocked by distributors in all important cities. See phone book.
TRIPLEXD

Bennett Pumps Corporation
QUALITY BUILT
BIG BERTHA
Gallon Dispensing KEROSENE Tank Outfits
Muskegon, Michigan
Symbol of Quality

SQUARE TANK OUTFITS for Kerosene



All Moving Parts
TOTALLY ENCLOSED
All Quantity Stops
PRECISELY ADJUSTABLE

MODEL 1065, 65-gallon capacity, 22" x 22" x 33½" high x 58" high over all Big Bertha Kerosene Tank Outfit with 14-gauge head and shell mounting Bennett exclusive 100% enclosed gallon, half gallon and quart dispensing kerosene pump with cylinder completely suspended within tank. All moving parts are enclosed and protected. Positive non-dripping shut-off nozzle is incorporated.

Other sizes, 120-gallon capacity, Model 1205 tank 28¾" square by 35½" high. Over-all height 60". Round outfits are Model 1060, 60 gal. capacity, 22⅜" diameter; and Model 1100, 110 gal. capacity, 30" diameter.

All tanks made of single pickle steel free from weak spots or pin holes and beautifully finished in your trade colors.

- Write for —

Complete bulletins on Big Bertha Round and Square Tank Outfits and Pedestal Pumps for dispensing kerosene and for dispensing gasoline to Muskegon. Bennett Export Corporation, 32 Broadway, New York City.

ON THE LAZY BENCH

National Petroleum News

Stray Shots

Looks are often deceiving. No auto is over 26 years old.

Man has to decide between staying single and staying at home.

Entirely too many try to be a howling success by just howling.

These days they promise to love, humor and obey their impulses.

The man who predicts the coldest winter in 100 years may have no money with which to buy coal.

Keeping out of trouble is almost as much trouble as getting into it.

When you see a man all sleepy and worn out he may have a bad baby or a good radio.

—Magnolia Oil News

* * *

Peter was playing at Johnny's house. When it was time to go home, it started to rain. Mrs. White, however, gave Peter Johnny's raincoat and galoshes.

"Don't take so much trouble, Mrs. White," said Peter politely.

"I'm sure your mother would do as much for Johnny," she replied.

"My mother would do more," said Peter. "She'd ask Johnny to stay for supper."

—Skelly News

* * *

Customer: "I want a pair of specrimmed hornicles—I mean spornrimmed hectacles—confound it—I mean heckrimmed spornacles."

Shopwalker: "I know what you mean sir. Mr. Perkes, show the gentleman a pair of rimsporned hectacles."

—The Rig and Reel

* * *

Charge!

Client—I think you made a mistake going into law instead of the army.

Lawyer—Why?

Client—Judging by the way you charge there would be little left of the enemy.

—The Marion Line

* * *

Testing 'Em Out

The boss called in his secretary.

"Put up a sign outside the office," he said, "that no salesmen are allowed to enter."

"But you just advertised for a salesman."

"That's just the reason. If a man can be stopped by a little sign like that, we don't want him."

—Our Sun

A shoemaker had just opened a store, and the first customer bought a pair of shoes for six dollars.

"I'm sorry," he said. "I haven't six dollars with me, but I'll give you three dollars and bring the rest tomorrow."

The shoemaker agreed and the man took the shoes and left.

"Fool," cried the shoemaker's wife. "He won't come back with the three dollars."

"Oh, yes, he will," the shoemaker answered, "I gave him two left shoes."

—Skelly News

* * *

A bore had been talking for hours about himself and his achievements.

"I'm a self-made man, that's what I am—a self-made man," he said.

"You knocked off work too soon," came a quiet voice from the corner.

—Our Sun

* * *

"Are you really a bank examiner, Mr. Tompkins?" asked the hostess.

"Yes, madam, I happen to be."

"Then I hope you will have time to examine baby's bank. No matter how much we shake it, nothing will come out of it."

—Magnolia Oil News

* * *

Careful Handling

Little Willie was sent to bring in the kittens. His mother heard a shrill "meowing" and called out: "Don't hurt the kittens, Willie."

"Oh, no," replied Willie, "I'm carrying them very carefully by the stems."

—The Diamond

* * *

"The new patient in Ward B is very good looking," said the nurse.

"Yes," agreed the matron, "but don't wash his face. He's already had that done by four nurses this morning."

—The Rig and Reel

* * *

"And so you are the lady who is giving my wife painting lessons? What sort of a pupil is she?"

"Well, I find her very apt, to say the least."

"That's funny. I always find her very apt to say the most."

—Skelly News

* * *

Elderly Lady—"Please tell me where Capa City is located."

Conductor—"Never heard of it."

Elderly Lady—"See! It's listed on that box car—Capacity 80,000."

—Fusion Facts

Shell's retail outlet, which is tied up with an established garage, offering all services for the automobile

Compact and Trim as on Shipboard

CLEVELAND, Dec. 21

IN ENTERING the Cleveland retail market the Shell Petroleum Corp. of Delaware obtained an outlet for its products at a service station in conjunction with an established garage on one of the main avenues to the populous east side of the city.

Gasoline, motor oil and greasing service is sold at the service station. Repairing, tire and battery service, car washing and storage is offered at the garage.

Among the features of the station is a heating system operated from an inexpensive home made hot water plant; three way outlets on the gasoline pump cabinets; a 4-post greasing lift; heat and hot water in the rest rooms; and the safe put out on the pump island.

The station, at 2323 Carnegie Ave. near E. 22 St., is owned and operated by the Ambler Realty Co. The Shell interests, through F. A. Tenny a sales representative in Cleveland, assisted in designing and erecting the station. The architects were Fox, Duthie and Foose. Picking out the equipment and laying out the grounds was done by Mr. Tenny. Much of the station's success is credited to the realty company's employing an experienced operator and giving him a free hand in operating the station.

Paved and slagged drives surround the station building. The building is in front of the garage entrance, and on the north side of the street. There is a drive through to the next parallel street, Prospect Ave., which leads directly to the business district.

On the island, at the front canopy are gasoline meters at both ends and an oil fountain in the middle. There are three metered outlets to the cabinets, which were suggested by Mr. Tenny. The side outlets are for the competitive gasoline, 400 Extra Dry, and the end outlet for the 4 cent premium fuel, Super Shell, High Compression Gasoline. This makes it possible to service a car with either brand of gasoline, regardless of where it stops.

The oil fountain has four grades, light, medium, heavy and Ford. This fountain was designed by Mr. Tenny, and is the first of its kind. The oil flows through visible containers to the faucets. Oil comes to the fountain under air pressure from storage in the basement. Air pressure on the oil is 13 pounds and on the gasoline is 11 pounds.

A safe is on the island. This location prevents possible breakage of doors and windows, should anyone decide to try to break into the safe, says Mr. Tenny.

Greasing service is offered at the lift at the side of the station, separated from the station building by a drive leading to the garage.

Greasing equipment consists of a P-25 Alemite high pressure system, and a Merit triple duty flusher and containers.

An oil fountain is installed at the grease lift. Four grades of oil are in the cabinet, flushing, medium, heavy and Ford.

At the other side of the station is an air and water tower.

A gasoline meter is at the back of the station, surrounded by drives between the station buildings and the garage. There are two outlets on this unit and an air unit.

The station building is 14 by 16 feet. On the ground floor is an office across the front and two rest rooms in the rear, accessible only from the outside. Incidentally, these rest rooms are clean, warm and have running hot water.

Storage space is available above the office. Oil tanks, air compressor and heating system are in the basement.

The lube battery consists of six 75-gallon containers, filled by pipes from the office above. There is a five horsepower compressor for air on gasoline and oil tanks and the tire filling outlets. This furnishes 18 cubic feet per minute, and can be readily stepped up to 21 cubic feet.

A domestic hot water system, a 30-gallon tank and natural gas heater, supplies heat for the office and rest rooms. The installation involved a problem of determining correct size for pipes and fittings to equalize the heat in all radiators. Temperature is controlled by thermostat. F. D. Allyn, construction superintendent for the Ambler Realty Co., designed the heating system. The heater also supplies hot water for the rest rooms.

Gasoline storage is underground at the side of the station opposite the grease lift. There are two 1000-gallon tanks for Shell gasoline and two 550-gallon tanks for Super Shell.

Architecture of the station is of French-Spanish design, painted and trimmed in Shell colors. Special tile was purchased for the border under the eaves. Neon signs are used.

MERRY XMAS

"On the way to Grandma's for Christmas dinner"

TRANSCONTINENTAL OIL CO.
RITZ BLDG. - TULSA OKLA.

Along the Air Lanes

V. N. "Crazy" Johns, former Tulsa policeman, former army flier, and present pilot of the Texas Pacific plane. His nickname "Crazy" is not in any sense derogatory with regard to Mr. Johns' mental equipment. Rather is it complimentary, as his absolute fearlessness has earned him the title, applied by less venturesome folks

The Texas Pacific Coal and Oil Co. uses a Ryan brougham as an aid to members of its oil sales department. A daily log is kept, covering all activities of the plane and keeping up to date the total miles flown, the time in the air, and the total expense. The ship has covered more than 20,000 miles to date, at a cost of about nine cents per mile, exclusive of pilot hire. V. N. "Crazy" Johns, former Tulsa policeman, does the herding for the T. P.

XXX

Flying can become as routine as shooting fish in a barrel. When questioned as to any trips he made recently, Tom Park, chief pilot for the McIntyre airport, Tulsa, could think of nothing but the usual everyday flights. These everyday flights include trips to Ponca City, Seminole, and some rescue work during the recent floods in Kansas. Landing at Chanute field, which had remained high and dry during the deluge, the big Stinson-Detroiter of D. A. McIntyre's picked up marooned train passengers, carried them on to Kansas City. "Naw, there's not much doing."

XXX

W. E. Carey, southern division aviation representative of Union Oil Co., and D. A. Cain, aviation lubricating engineer, hopped off recently from Los Angeles for a trip into Lower California and Arizona, where they completed one of the first surveys of airports in that district that has so far been made.

XXX

At the present time the night lighting facilities of the Tulsa municipal airport are open only to the planes of the National Air Transport. This is because all the runways are not yet in shape to receive planes. When work on the runways has been completed the port will be listed by the Department of Commerce as equipped to receive planes at all hours, and will be thrown open to the flying public.

XXX

Peoples Gas Light & Coke Co., Chicago, recently completed the biggest gas holder in the world, built to hold 20 million cubic feet of gas. It is 25 per cent bigger than the largest one built previously, and cost $1,800,000.

The holder is equipped with beacons to aid flyers. The lighting equipment cost $65,000 and requires an annual maintenance expense of $1500. The top of the holder is 283 feet in diameter and is painted black with bright yellow letters 30 feet high which read:

"Chicago Municipal Airport, 2 Miles," and an arrow points the direction. Tops of the letters are to the north, as is required by the United States Bureau of Aeronautics. It may be as late as Jan. 1 before the lighting is in operation.

XXX

A report compiled by C. F. Lienesch, head of the technical relations department of the Union Oil Co., following a 5100-mile flight through the northwest, indicated that the cities in Washington and Oregon are aiding materially in the development of aviation. Forty-one airports, according to the report, are being operated in 34 cities, and of that number 19 are municipally owned. Steps are being taken in many other cities to acquire property for municipal fields.

Forty-five local companies and three transport companies are operating from one to seven planes each from the 34 cities. Bonds already voted for municipal airport development and bond issues contemplated, the report sets forth, total $700,000. More than 600 students are enrolled in the flying schools maintained at the major flying fields.

XXX

In an effort to prevent costly shutdowns in oil fields due to lack of proper equipment or broken equipment, the MacClatchie Mfg. Co., Compton, Calif., manufacturer of oil well tools, has placed into service four airplanes for fast delivery. A travel-air biplane was just added to its service department. The company will begin production of an aviation engine around Feb. 1. It will be an L-head, seven cylinder, 150 h.p., radial air cooled. It will be christened "Panther." About 50 will be made each month, according to R. H. Peterkin, advertising manager.

XXX

The Reseda Post American Legion No. 308, San Fernando Valley near Los Angeles, recently dedicated its new club house and flying field with an air carnival. Richfield Oil Co.'s electrically operated power tank truck for serving planes, was donated for the occasion.

Authorized Agent's Agreement Offered To Chicago Dealers by Standard

CHICAGO, Dec. 22

STANDARD OIL CO. OF INDIANA last week introduced its "authorized agent's agreement" into Chicago. The A. A. A. is older than the famous Q. D. A. and is well understood in many parts of the territory. The newest thing about it is that it is actually being offered in Chicago from which it had been excluded. Here are the outstanding features of the proposition:

It is optional. Any Standard dealer who enjoys a Q. D. A. contract may now take the A. A. A. or leave it. It is up to the dealer.

Authorized Agent's Agreement

It is hereby agreed between STANDARD OIL COMPANY, an Indiana corporation, first party, and.....of....., second party, that second party shall act as authorized agent for the first party at service station located at....., for the sale of gasoline, motor fuel, lubricants and petroleum products generally.

1. Second party shall give his exclusive time and attention to said employment (except as hereinafter specified) and shall operate said service station in compliance with the rules and regulations of first party in a manner satisfactory to and at the will of said first party.

2. First party shall keep said service station fully supplied with gasoline, motor fuel, lubricants and other petroleum products which second party shall sell for cash for the account of the first party, at prices established by it, remitting therefor (less his earned commission) at the time the supply of each product is replenished. However, in the case of package specialties, such as Finol, Semdac Auto Polish, Semdac Liquid Gloss, etc. where stock may not be replenished often, settlement is to be made June 30th and December 31st, in addition to settlements made at the time stocks may have been replenished; alcohol stocks to be settled for when replenished and when picked up at the end of the alcohol season. Second party may extend credit for products purchased to persons whose names are furnished him in writing by party of the first part as entitled to credit but second party shall be personally responsible for payment in cash for sales to all other persons.

3. Second party shall have the privilege of handling and dealing in automobile accessories on said premises but shall not permit said business to interfere with his sales of the products of first party or his duties under this agreement while in first party's employment.

4. In consideration of said services the first party agrees to pay to the second party a commission of **two and one-half** (2½) cents per gallon for Gasoline sold by second party for first party at said service station, to be paid upon all such sales at the time of replenishment.

5. Should sales of Gasoline in any one calendar month amount to more than six thousand (6000) gallons, an additional commission of ½c per gallon shall be paid not later than the Fifteenth (15th) of the month following.

MOTOR OILS

Motor Oils, Greases, and Specialty products shall be sold in accordance with "Retail Price List" attached hereto and second party shall be paid commissions representing the difference between such Retail Prices and "Wholesale Price List" also attached hereto. Commissions being paid at time of remittance for and replenishment of these products. An additional commission on Motor Oils and Greases based on quantity sold will be paid at end of six months period as outlined in Wholesale Price List hereto attached. Either "retail" or "wholesale" prices are subject to change at any time by first party.

6. Second party shall be responsible for all loss or damage to products furnished by first party while in his possession as agent and shall account for said products as if sold.

Dated this.....day of.....192.....

STANDARD OIL COMPANY (INDIANA)

BY.....

Approved as to Form — Manager

.....

Attorney for Standard Oil Company (Indiana)

.....

Second Party.

If a dealer takes it on he must throw out all other merchandise except that specifically authorized by the Standard Oil Co. And he must handle Standard's complete line.

He must employ himself to Standard for a commission of 2½ cents a gallon on gasoline or 3 cents if he sells more than 6000 gallons a month. And he gets stipulated commissions on oils and greases.

He rents his station to Standard Oil Co. at a figure that may be arrived at by negotiation. The monthly rent check in Chicago can be made to approximate 1 cent a gallon on gasoline; ½-cent elsewhere.

When a dealer leases his station to the Standard Oil Co. he gives them an option to buy it at a pre-arranged figure.*

In brief, the agreement may be illustrated with the Standard Oil Co. as party of the first part and "Bill Jones," a Red Crown dealer, as party of the second part. The Standard leases "Bill's" station and hires him on a commission to run it. The leasing is done with one legal instrument and the hiring is done with another.

As employer, the Standard Oil Co. can fire "Bill Jones" and put in somebody else to run his station on 10 days' notice. But as landlord, "Mr. Jones" can kick the Standard Oil Co. out of his place of business when the lease expires, which is every 12 months.

If a thing like this should actually happen (and it has actually happened more than once) where "Jones'" station was a good one for the Standard but "Jones" himself was not so good; this is the way it worked out:

"Mr. Jones" and the Standard Oil Co., entered into the A. A. A., in good faith and signed up all the papers. But after two months worrying along the Standard decided "Jones" was not the man for the place. So they discharged him and put in a salaried employe. "Jones" kept getting his rent, of course.

"Jones" could not do anything until the year was up. But when the Standard's lease expired he attempted to evict his tenant and take possession of his station again. But the Standard liked the station so they refused to be evicted. They exercised the option and bought the station at a figure "Mr. Jones" had agreed upon a year before.

The important point usually not un-

*For complete details on the matter and how it has worked in other places, see NATIONAL PETROLEUM NEWS, issues of Nov. 9, 1927, page 17; Nov. 23, 1927, page 21, and Dec. 7, 1927, page 140.

derstood is the way rent is figured. It may actually be figured on gallonage but it is not paid on a gallonage basis. Certainly a station with big gallonage would earn more rent than a small one but rent is not paid by the gallon. Rent is paid by the month and it is the same amount every month.

If a station man in Chicago averaged selling 6000 gallons a month in 1928 he might get $60 a month rent for his station from the Standard. That would be the limit, however. After the agreement was signed, if the street were closed and the station never sold a gallon of gasoline for three months, the rent check of $60 would keep coming just the same.

On the other hand the $60 rent might be agreed upon and after it was all arranged the station might have unusual business thrown into it by unforeseen circumstances. It might double its gallonage. The rent check would still be $60. It takes no account of current gallonage.

Since a copy of the A. A. A. was published in NATIONAL PETROLEUM NEWS and the verbiage of the contract has changed in a few particulars and the figures changed coincidentally with the change in the Q. D. A. figures. A copy is reproduced herewith.

Oil Trademarks for Copyright

The following are trademark applications pertinent to our field pending in the United States Patent office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Barrister Building, Washington, D. C., trade-mark specialists.

As an additional service feature to its readers this journal gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering. You may communicate with the Editor of this Department, or send your inquiry direct to the National Trade-Mark Company, stating that you are a reader of this journal.

"UNIVERZOIL AIR TRAX" No. 272,972. W. H. Barber Co., Minneapolis, Minn. For lubricating oils and greases.

"PUROFORD" No. 271,995. The Pure Oil Co., Chicago, Ill. For fuel oils, lubricating oils, and greases, and motor lubricating oils.

"STAND UP" No. 272,116. New York Lubricating Oil Company, New York City. For lubricating oils and greases.

"SOUTHERN" No. 248,443. Pierce Petroleum Corp., Wilmington, Del. For lubricating oils.

"HIGH FIRE" No. 263,971. Asher L. Scudder, Fort Worth, Texas. For lubricating oils.

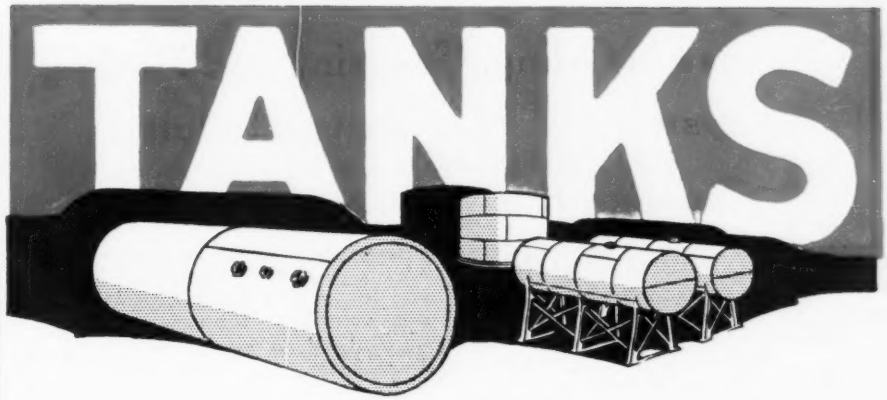
"PARALUBE" No. 265,723. General Petroleum Corp. of California, Los Angeles, Calif. For lubricating oils.

"PITTSCO" No. 269,254. Pittsburgh Gasoline Co., Lancaster, Pa. For gasoline, kerosene, lubricating oils and greases, and fuel oils.

"RAILROAD JONES OIL CO" No. 270,717. Railroad Jones Oil Co., Winston-Salem, N. C. For gasoline, lubricating oils and greases.

THE WORD "OIL" WRITTEN ON AN ORANGE COLORED RECTANGLE SUPERIMPOSED ON A TRIANGLE—No. 270,902. U. S. Oil Company, Providence, R. I. For lubricating oils and greases.

"BLENDINE" No. 254,677. William J. McKee. Los Angeles, Calif. For chemical preparation to be added to gasoline to increase its efficiency.



Underground Storage Tanks
Bulk Storage Tanks
Field Storage Tanks
Hoppers and Bins
General Plate Work

You wouldn't throw money away, yet buying tanks of cheap quality is doing just that!

The Birtank is the standard of the South, made of the finest materials obtainable. Every Birtank is welded, not riveted, and is built to last. No tank leaves our plant without being thoroughly inspected and tested.

Our excellent shipping facilities, and our location in the midst of the iron and coal mines of Alabama, enable us to sell at a surprisingly low price.

Standard sizes are carried in stock ready for immediate shipment. We are equipped to give rapid service on special tank fabricating work.

Write now for complete price list.

AN INGALLS BIRTANK PRODUCT

BIRMINGHAM TANK CO.
BIRMINGHAM, ALA.

PETROLEUM PRODUCTS
From All Fields

Carloads, Tank Cars, and Cargoes.
For Domestic or Export.

GASOLINE KEROSENE NAPHTHA
CRUDE OIL FUEL OIL GAS OIL FURNACE OIL
CYLINDER STOCKS
UNFILTERED AND FILTERED
BRIGHT STOCKS
COLD SETTLED AND CENTRIFUGED
PALE — RED OILS
WAX — PETROLATUM
TECHNICAL WHITE OILS
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For 35 years of reliability, service and integrity— This Company enjoys an International Reputation

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Changes in Oiling, Greasing and Fueling Systems of New Auto Models

By John Younger

Here is a means by which even minor changes in lubrication and fuel systems of new models of automobiles may be quickly made known to the men in your lubrication stations.

John Younger, head of the automotive engineering department of Ohio State university, and editor of Automotive Abstracts, will tell NATIONAL PETROLEUM NEWS readers what the changes are in both engine and chassis lubrication, and in fuel systems, in new models, as they are brought out.

His articles will appear irregularly closely following the announcement of new models by the automobile companies.

The Auburn Automobile Co. has announced the addition of a line of bigger straight-eights to sell, in sedan model, at $1795.

The motor is Lycoming of 125 horsepower. In detail, the motor is a straight-eight Lycoming with a tax horsepower of 33.8 and a maximum rating of 125 at 3300. Bore and stroke are 3¼ x 4½ with displacement of 298.84. Valve arrangement is the L type. Standard compression ratio is 5.25-1 with an optional head available with ratio of 6.56-1. A 1¼-inch carburetor of dual type is used.

Fuel feed is by pump with an AC filter. The Bijur chassis lubrication system is retained. This system oils 21 points of the chassis with a single thrust of a foot pedal.

Brakes are Lockheed internal expanding hydraulic with extra compensating cylinder. This cylinder keeps the pressure even on all four brakes at all times.

Capacity of the water pump has been increased 20 per cent in order to give improved cooling especially in the lower speeds.

* * *

The Duesenberg Co. are introducing the largest car in America; an eight-cylinder costing $8,500.

The chassis is lubricated by an improved system which relieves the driver of all responsibility in this connection, even the universal joints, shock absorbers and clutch throwout collar bearing being automatically lubricated by the engine every 75 or 80 miles. Oil is strained on entering the pump, through the usual sediment screen, and again after leaving the pump, through a Purolator. In addition to these precautions, the crankshaft has ducts drilled in it which retain any foreign matter that may pass through the two strainers.

All main, connecting rod, piston pin, camshaft and chain sprocket bearings, as well as all accessory drives, are lubricated under pressure. Fuel feed is by syphon-type pump, and is in direct proportion to engine speed. The pump is fitted with a priming handle, which also serves the purpose, in service work, of indicating to the mechanic whether the setting is for too lean or too rich a mixture.

An automatic spring release is mounted on the fuel pump housing and the engine "shoots" oil to the chassis bearings at regular intervals independent of the driver's memory. The fuel pump, automatic oiler and generator are driven by shaft from the accessory front drive chain. A series of lights on the instrument panel show whether or not the oil pump is working, and when the tank supply is exhausted.

The fuel supply is carried in a 26-gallon tank at the rear, which is filled through a neck located at the side, so that it does not interfere with the trunk.

* * *

The Chandler Motor Car Co. is introducing new models. Westinghouse vacuum brakes are standard equipment with the Big Six, Royal "75" and "85" Eight series. The notable one shot lubrication system is featured with all the series except the "65" Six. Improved high pressure lubrication to all camshaft, crankshaft and connecting rod bearings, together with the one shot system of chassis lubrication, make all the models literally ride on oil.

* * *

The new Whippet models are announced and some of the things that will interest members of the petroleum industry are as follows.

First, it has adopted the new finger-tip control. By means of an ingenious improvement, all functions of starting the motor, controlling the lighting system and sounding the horn are operated from a single button conveniently located in the center of the steering wheel. A mere pull up on the button starts the motor.

The bore of the Whippet four engine is unchanged but the stroke has been increased by ⅜-inch. Coupled with this increase in stroke is an increase in compression ratio, which with a new manifold and a larger intake valve produces an engine of decidedly more horsepower and torque.

The carburetors of both the Whippet four and Whippet six have been entirely redesigned and add materially to the new high speed and power performance. The lubrication system follows the same practice which has been so successful in previous models —that of the full force feed system which assures positive lubrication to every part of the engine requiring oil.

* * *

The Peerless Motor Car Corp. has introduced its new model 61 car. The following particulars will be of interest:

Battery: Three cell, six volt, 92 ampere hour capacity. Located under front floor board, on left hand side of car.

Carburetor: Stromberg model UX-2.

Cooling system: Water (*capacity 3 gallons*) circulated by pump driven by extension of fan shaft. True honeycomb type radiator with detachable shell.

Electrical system: Two-unit, single wire, third brush, six-volt type. Auto-lite.

Fuel system: A. C. Fuel Pumps—Domestic. Seventeen-gallon gasoline tank mounted at rear of frame. Fuel gage on dash.

Lamps: All closed cars are equipped with dome lamp. Bulbs: Headlamp 21 C.P. double filament, double contact; cowl lamp 3 C.P., single contact; dash lamp 3 C.P., single contact; tail lamp 3 C.P., single contact; dome lamp 3 C.P., single contact; signal lamp 15 C.P., single contact. All 608 volts.

Chassis lubrication: High-pressure system.

Engine lubrication: High-pressure to all crankshaft, connecting rod and camshaft bearings. Gear pump submerged in oil pan, driven from spiral gear on camshaft. All other parts lubricated by spray off crankshaft, camshaft and connecting rod bearings. The timing chain and sprockets are lubricated from the front camshaft bearing, through drilled holes in the camshaft sprocket hub and rim. Large area strainer on oil pump. Oil filtered, cleansed and cooled by circulation through special filter mounted high on dash. Oil capacity—5 quarts. Pressure gage on dash. Level indicator on left hand side of crankcase.

Spark plugs: ⅞ of an inch, 18 S.A.E.

Blessed Holiday

The smithy's forge is idle,
The plowman leaves his field,
The throats of Christian people
Their glad Hosanna's yield.

Love is in His temple;
Angels lead the way;
All the world is born again
This Blessed Holiday.

—W. E.

Written and illustrated especially for

CHAMPLIN REFINING CO. *Enid, Okla.*

Oklahoma (Group 3) Rapidly Losing Place As Nation's Basic Gasoline Market

By J. C. Chatfield
N. P. N. STAFF WRITER

TULSA, Dec. 22

THE Oklahoma (Group 3) refining district has lost its position as the basic market of the nation for refined petroleum products, particularly gasoline. The greatest change has taken place abruptly within a few months since midsummer.

For years past, except for very short intervals when some other refining district was shading prices rapidly to dump surplus stocks on the market, this Mid-Continent district has been the basic market. It offered gasoline at the lowest going price available and contained a large number of intensely competitive units dependent on the spot market for an outlet for their goods. It was for that reason largely that other refining groups outside Oklahoma adopted a policy of comparing their prices with those made in Oklahoma by quoting "F.O.B. Group 3."

The volume of gasoline sold on a spot basis direct to jobbers by Oklahoma refiners has dropped sharply in recent months. Refiners in the state have refused to meet the competition of other areas and have been content to sell, in their natural territory, only as much gasoline as jobbers would buy at prices the manufacturers considered reasonable. The refiners maintained a policy of keeping their individual production schedules in line with the amount of material they could move on contract, to their own stations and on the spot market without price cutting.

The result of this policy has been that the volume of material moving on the spot market direct to jobbers from Oklahoma plants has been declining month by month since midsummer. Along with the decline in actual volume has been a decline in the percentage relationship of spot sales to total sales of gasoline. Actual selling prices at Oklahoma plants have not been in line with prices made at plants in other refining districts.

This situation is illustrated in two accompanying charts prepared on the basis of U. S. Bureau of Mines reports and the records of Platt's Oilgram, which gathers sales reports from refiners operating 82.6 per cent of the refinery capacity of the state.

Fig. 1 illustrates the percentage relationship of estimated spot sales of gasoline to jobbers to total gasoline sales by Oklahoma refiners. Fig. 2 gives the actual volume of spot sales reported to the Oilgram month by month and total estimated sales for the state. The estimated total was figured mathematically by raising the percentage of reporting capacity to 100.

In January, 1928, total spot sales to jobbers were estimated at 2369 cars on the basis of actual reports of 1939 cars sold by refiners operating 81.8 per cent of the operating capacity. This was increased to 2637 cars in February, 3603 cars in March, 3913 cars in April and 4763 cars in May. The volume dropped slightly to 4415 cars in June but reached a peak of 4828 cars in July.

In August competition of other areas began to cut into the Oklahoma business and spot sales dropped off 846 cars to 3982 cars at a time it might be expected a new peak would be reached. In September there was a further loss in spot business of 1138 cars, bringing the estimated total down to 2844 cars, which was only a little above the February total. In October sales dropped again to 2696 cars and in November to 2006 cars, 363 cars less than last January.

By reference to Fig. 1 it will be observed that the percentage of spot sales to total sales rose sharply during the early months of the year from a low of 18.6 per cent in January to a high of 25.4 in April, when jobbers began to stock up for summer as they saw the steadily advancing market.

During the next three months the percentage of spot to total gasoline sales dropped slowly to 23.8 in July. From that point on the drop was even more rapid. Tank wagon protection contracts made it desirable for jobbers to take out their maximum shipments under these agreements, but surplus requirements were obtained by shopping around. In August spot sales to jobbers represented 20.1 per cent of the total and in September only 15.8 per cent. There was an increase to 17 per cent in October, but in November there was a drop to 13 per cent on the basis of estimated total shipments from the state, Bureau of Mines figures for that month not being available.

During the months that spot business in Okla-

(*Continued on Page 86*)

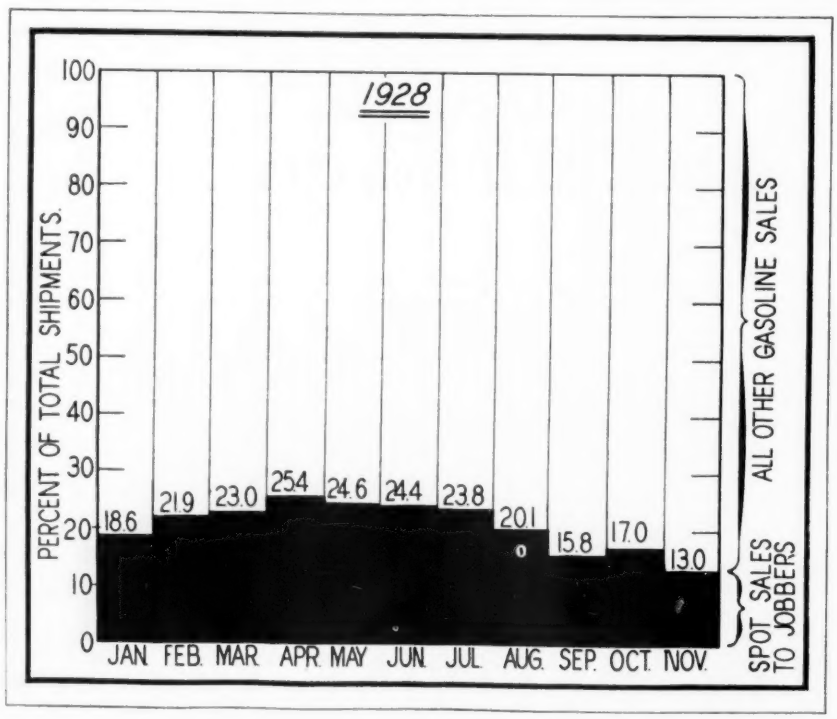


Fig. 1—Percentage relationship of spot sales of gasoline direct to jobbers to total gasoline sales made by Oklahoma refiners

WARNING

TELL your customers when starting their cars with Phillips '66' to keep their garage doors open—for she's a highly volatile gasoline and starts right now.

There's no delay, even in winter—no grinding gears when the starter buzzes over—off like a shot and keeps running 100%.

Only a gasoline of Controlled Volatility* can give such motoring satisfaction.

Phillips '66' will bring your customers back time and time again—make them steady patrons. These customers will tell others that they have forgotten old starting troubles and unsatisfactory mileage, and so your trade will grow and stay sold. . . . Write, wire or telephone for quotations.

WRITE, WIRE OR TELEPHONE FOR QUOTATIONS

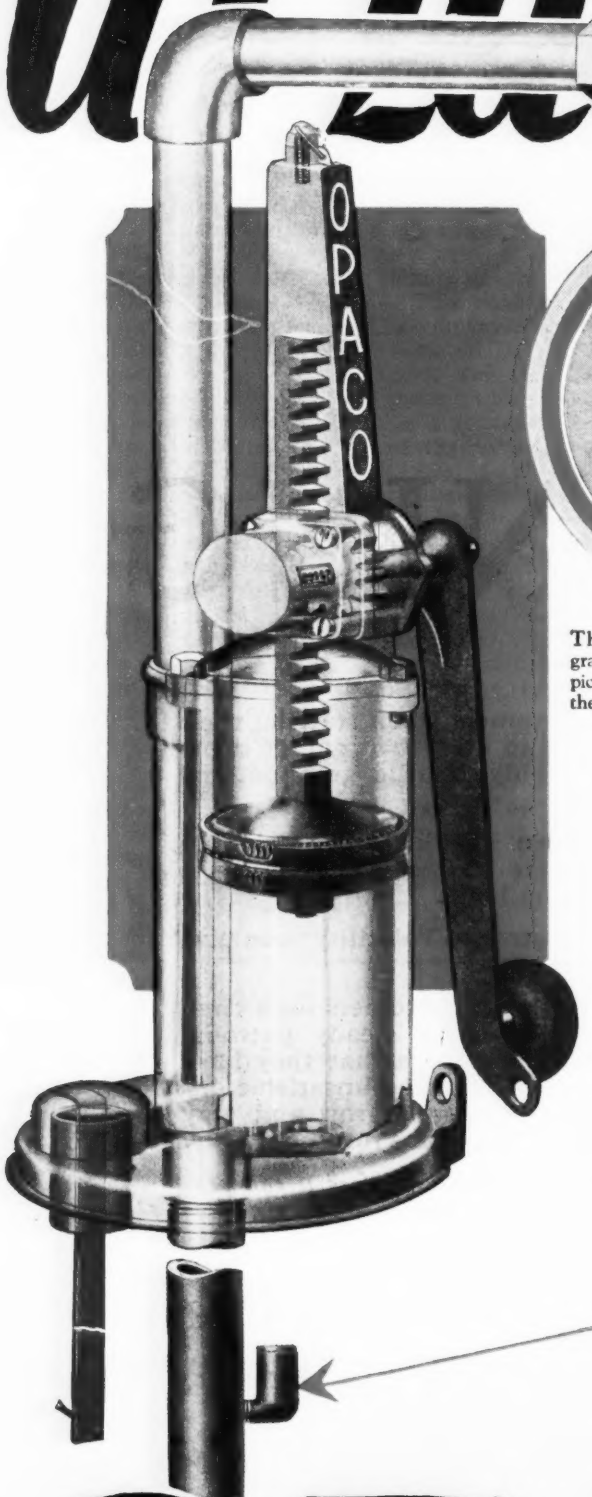
Liquid gasoline must be vaporized before it can be burned in an engine. Volatility refers to the ability of a liquid gasoline to vaporize.

Phillips PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

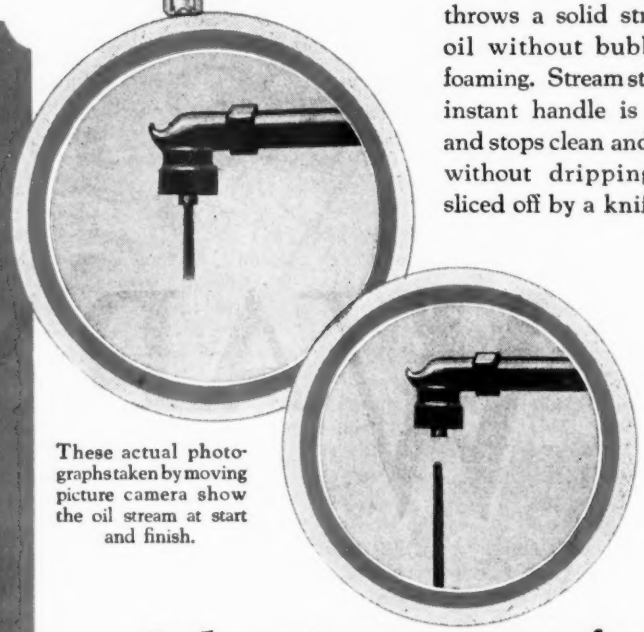
NATURAL GASOLINE FOR CONTROLLED VOLATILITY

Phillips 66

At last—an



. . OPACO Master Pump throws a solid stream of oil without bubbles or foaming. Stream starts the instant handle is turned and stops clean and sharp, without dripping, as if sliced off by a knife.



These actual photographs taken by moving picture camera show the oil stream at start and finish.

Other important features

1. Non-Drip Nozzle.
2. Attractive in appearance. Can be furnished in any colors desired.
3. Throws solid stream without bubbles or foaming.
4. No gaskets or packing glands in pump.
5. No cast iron in pump. Cylinder and base die-cast integral.
6. Pump is shipped sealed with a guarantee of accuracy several times within limits of the requirements of the U. S. Bureau of Standards for Measuring Pumps.
7. Can be entirely disassembled and reassembled in a few minutes time without fear of leaky joints.
8. Veeder Meter checks accurately with delivery. All pumps tapped ready for attachment of meter, whether or not meter is originally ordered.
9. Non-removable gauge stick fits narrow slot in base of pump. Sealed service is thus provided for.

OPACO

Expansion Valve that Stops Expansion Dripping!

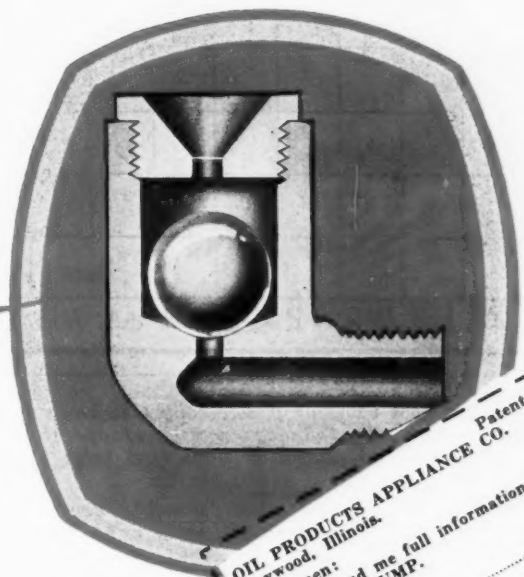
Heretofore, the main cause of dripping has been the expansion of oil between the foot valve and delivery nozzle due to temperature changes. In a quart pump this expansion is approximately one per cent, or one cubic inch for every 25-degree change in temperature. . . . . OPACO Engineers have at last perfected their STOPDRIP Valve that eliminates expansion dripping. With this device, OPACO'S Master Pumps reach the ultimate in perfection.

an amazing device . . . . . How It Works!

The brass STOPDRIP Valve is screwed into the delivery tube inside the tank. In appearance it is similar to a grease or oil cup. Inside, is a 15/32" steel ball the weight of which is slightly greater than the pressure due to the height of the oil in the delivery pipe against the contact circle of the ball. Under normal conditions the ball rests lightly against its seat balancing the column of undelivered oil. A slight pressure built up by expansion due to rising temperature destroys this balance and the ball is lifted off its seat permitting the excess oil to escape into tank. This relieves internal pressure and the ball reseats.

When oil is pumped the handle pressure instantly raises the ball tightly against its top seat before nozzle valve opens holding it there during pumping operation thus preventing loss of oil and inaccurate measure.

Again a major trouble has been corrected by an ingenious yet simple device. Again OPACO Engineers have been the first to find the solution. Again, as *always* OPACO Master Pumps and Oil Dispensing Equipment offer exclusive improvements and added Quality that can only be secured in OPACO *Quality Equipment.*



OIL PRODUCTS APPLIANCE CO. Patent Pending
Maywood, Illinois.
Gentlemen:
Please send me full information on your new NON-DRIP PUMP.

Name .....
Firm .....
City .....
State .....

OIL PRODUCTS APPLIANCE CO.
Maywood, Illinois

Eastern Office:
17 Battery Place, New York

West Coast Distributors:
Rheem Mfg. Co., Los Angeles and Emeryville, Cal.

Mail Coupon for further information

Master Pump

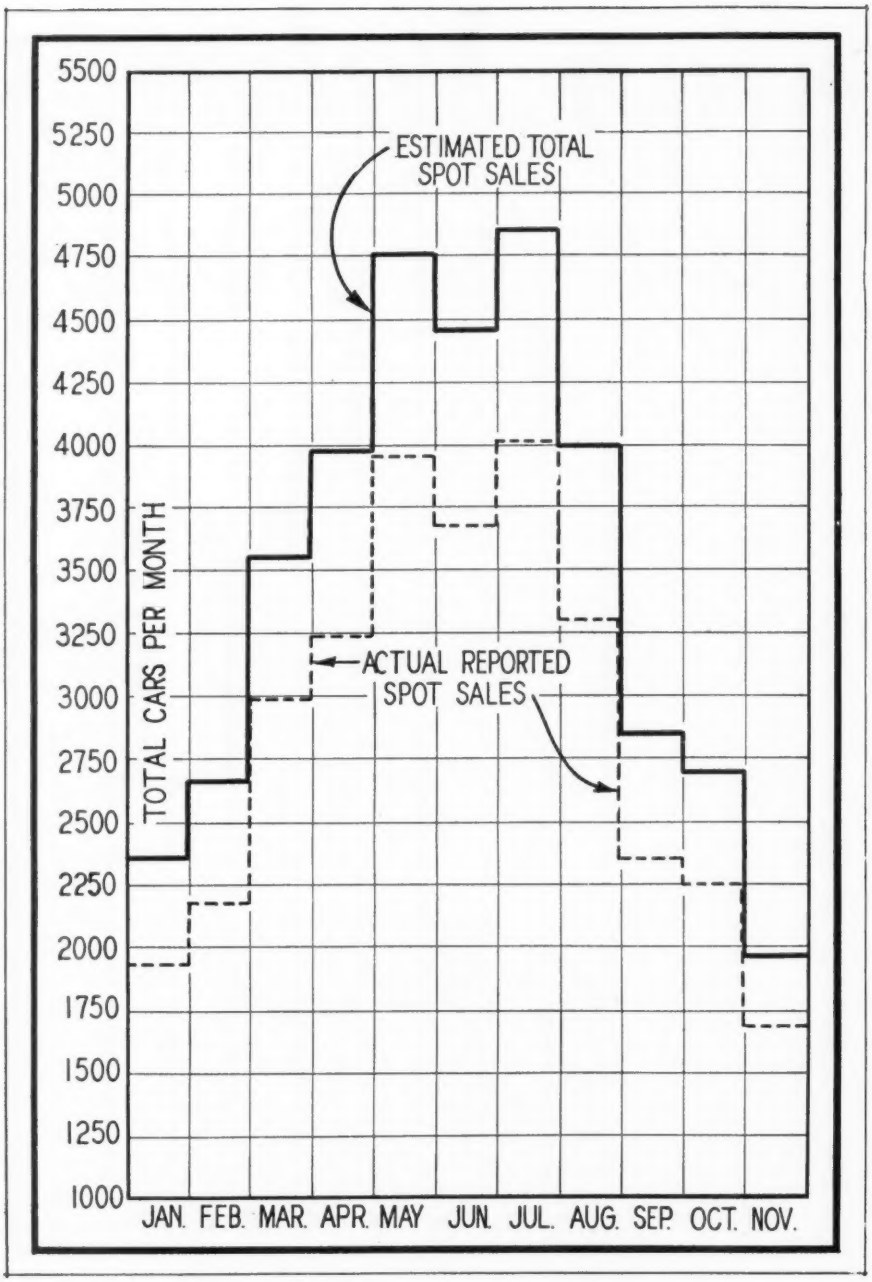


Fig. 2—Total spot sales of gasoline by Oklahoma refiners direct to jobbers as reported by a majority of operators to Platt's Oilgram and estimated total spot sales to jobbers

homa has been falling away, other refining districts have maintained lower quotations on an "F.O.B. Group 3" basis consistently. A week or so ago, for example, the going gasoline market of the country for U. S. Motor gasoline appeared to be about 8 cents per gallon "F.O.B. Group 3." But very little of this 8 cents gasoline was coming from Oklahoma. Most refiners in the state were quoting 8.25 to 8.50 cents per gallon and some as high as 9 to 9.125 cents per gallon.

On the Gulf coast export gasoline is being sold at a price which would figure back to about 7.60 cents per gallon in Oklahoma. West Texas gasoline is selling below 8 cents on a Group 3 basis. Louisiana and Arkansas gasoline is being delivered in Ohio, Indiana and Michigan at about 8 cents, Group 3. Open quotations of the Standard Oil Co. of Ohio in that state will figure back only a little over 8 cents, Group 3. The list might be extended indefinitely.

Oklahoma refiners apparently have come to the conclusion that West Texas gasoline, particularly, is going to find a market in the Group 3 trade territory at some price. If they meet the price from week to week the market will sink to a level which will cause severe losses. Their only other course is to make up their minds to do less business by refusing to meet the low priced competition, selling only what they can on a quality basis.

In the past Oklahoma has met, or tried to meet, all low prices with the result that every depression has taken its toll of bankrupts. This year a new idea is being tried. In some quarters it is being supported by jobbers who value a steady source of supply of uniform products. Others are shopping around from field to field as in the past.

Phones Motorists When Cold Spell Comes

TULSA, Dec. 22.—The daily weather forecast has been used by the Champlin Refining Co. to increase sales of radiator alcohol and anti-freeze solutions this winter. In addition to increased sales of these specialties gasoline oil and grease sales were helped.

"Bill" Gossett of the Champlin organization, tells how the weather forecast has helped business in a department which he calls "Under the Canopy," published in the December issue of "Field Flashes" the Champlin house organ. Here's how:

"We made a list of a hundred people this fall. Some were good customers and others were not trading with us at all. We then made arrangements to get the weather report about noon each day. We just call the newspaper office and they tell us what is predicted.

"Several weeks ago we got a report that a bad freeze was due. We got out our list and Charlie, George and I took turns calling 'em up and telling them about the freezing weather that was due and suggesting that they come in and have their radiators taken care of.

"It worked fine. We sold 34½ gallons of alcohol and 19 gallons of glycerine that first afternoon.

"A lot of the folks said they appreciated us calling 'em so we intend to do that all winter long. Whenever a real bad cold spell is predicted we'll call 'em up.

"In addition to the profit the company makes on anti-freeze solutions we'll sell quite a lot of gasoline, oil and grease by doing this."

Associates Buy Exhibit Spaces for Ohio Show

CLEVELAND, Dec. 22.—Only nine of the 45 exhibit spaces at the annual convention of the Ohio Petroleum Marketers Association remain unsold, W. A. Milne, executive secretary of the association, said in Cleveland this week. The convention will be held Feb. 13, 14 and 15 in Hotel Statler, Cleveland.

The 36 spaces already taken were sold to associate members, who were given first choice. Non-members will now be given an opportunity to purchase the remaining booths.

Mr. Milne said he expected to announce soon that several nationally known speakers will address the convention. An attendance of more than 700 is expected.

The Editor of the EQUIP-PAGE won't work this month

So MERIT EQUIPMENT CORP. takes this opportunity to wish its many friends

A Merry Christmas
and
A Prosperous New Year

Note: Watch the coming issues for Equip-page announcement regarding station-salesmen's prize contest.

At the Dawning

New Year . . new vision . . new era . . more and better planes . . bigger air ports . . greater speed . . safety . . economy.

A new industry has tried its wings. Experiment, invention, sacrifice . . all played their part. Now the curtain arises upon another act . . aviation delves into fuel . . the most important auxiliary to successful flying.

Naturaline stands ready . . thoroughly flight tested . . known to pilots and airport operators from coast to coast.

Start the new year right and become a Naturaline dealer.

Write for further information

The Naturaline Company of America
Chestnut and Smith Building
Tulsa, Okla.

NATURALINE
THE SUPER AVIATION MOTOR FUEL

New Refrigerator Offers Market for Kerosene

CLEVELAND, Dec. 22

THE newest oil burning device is a refrigerator.

To our industry it means an increased market for kerosene and it may mean an opportunity to assist in developing this market rather than standing by for someone else to do this work.

The Perfection Stove Co., Cleveland,

The burners of the Superfex refrigerator. About a pint of kerosene operates the burners for refrigeration for 24 hours

manufacturer of domestic heating burners and oil cook stoves, is beginning production of a kerosene burning refrigerator. This product is for rural homes not served by electricity. Its trade name is Superfex Oil-Burning Refrigerator.

The potential kerosene market this product represents is approximately 8500 tank cars a year. This estimate, by the company, is based on the refrigerator consuming almost a pint and a half (21 ounces to be exact) for each 24 hours refrigeration and approximately 1,000,000 homes constituting the market. These homes would consume more than 6,800,000 gallons of kerosene a year.

Oil jobbers may be given an opportunity to market the refrigerator, thus participating in distribution profits and having an opportunity to service the customer for kerosene.

The Perfection Stove Co. has definitely determined a sales policy, officials have said, and one of the essentials is that of distribution through dealers with soliciting crews. The refrigerator sales organization will be a distinct and separate group from that marketing other products of the Perfection Stove Co., which are sold mainly through hardware stores and general stores.

The oil jobber is considered in a good position to meet the requirements of solicitation crews. Tank truck drivers cover their routes at least weekly, and frequently oftener, and know intimately their customers and other farmers in their territory, all of whom are prospects for a refrigerator, if there is running water in their homes.

The Superfex refrigerator burns the ordinary grade of kerosene.

The Perfection Stove Co. is beginning production of a five cubic foot refrigerator to retail at $280 f.o.b. Cleveland. Other sizes will be made. Aside from homes, milk houses, meat storage, barbecue stands and so on are considered good prospects.

Following is a description of the Superfex as given by the Perfection Stove Co.:

Any refrigerator that does not use ice usually is referred to as a "mechanical" refrigerator, but this description is not accurately applicable to the Superfex oil-burning refrigerator, for it has no moving parts.

The only "power" required by this refrigerator is the heat from kerosene used in a burner somewhat like that on an oil cook stove.

The absorption principle is used. When the heat is applied to the refrigerant which is hermetically sealed inside the generator a gas is formed which cools as it passes through a condenser. The cooling process liquefies the gas and it collects in the evaporator. As it evaporates it carries with it heat from the food compartment of the refrigerator, thus cooling the food compartment.

The burners are operated only once a day for about one and one-quarter hours, the length of time being gauged by the amount of fuel used. Once a day a bottle containing a little more than a pint of kerosene is inverted in the burner unit and the two burners are lighted. When the oil is consumed the burners go out and refrigeration continues for 24 to 36 hours.

The two burners of this refrigerator are mounted on a slide somewhat like that on a filing cabinet and are visible only when withdrawn for lighting. As soon as lighted, the burners are slid back into the cabinet where they are completely concealed from view. This heating unit is in a compartment that is entirely separate from the food compartments.

A higher type
of
GREASING
SERVICE
GLOBE HOIST
SAFER - QUICKER - BETTER
Send for illustrated folders. They tell how Globe is building more profits for Globe Hoisters.
Globe Machinery & Supply Co.
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Des Moines, Iowa

Get a Binder

for

National Petroleum News

YOU can get one specially made to hold 26 issues of National Petroleum News—made of imitation leather and inexpensive.

It enables you to keep the weekly issues of National Petroleum News in good order and easily accessible.

Send check or money order for $2 and your N. P. N. binder will go to you promptly.

NATIONAL PETROLEUM NEWS
1213 West 3rd St.
Cleveland, Ohio

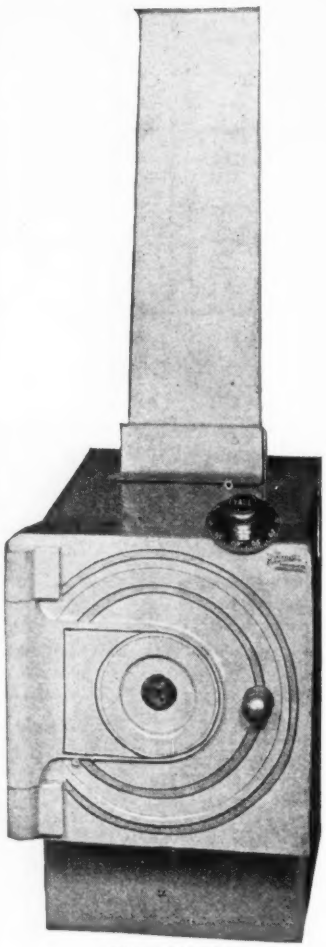
Name .....

Address .....

Burglar & Hold-Up Protection with the NATIONAL No. 400 CHESTS

Large Capacity with Envelope Chutes

Designed to be Installed in Concrete Blocks



Chest Closed

Fitted with Removable Yale Dial Lock. The Chest Combination can be Unknown to the attendant and the Dial Kept Out of Sight.

Ideal for Periodic Collection Systems.

Chute has Loose Plate so attached at roof of chest that it will drop completely over money envelopes if attempt is made to remove chute.

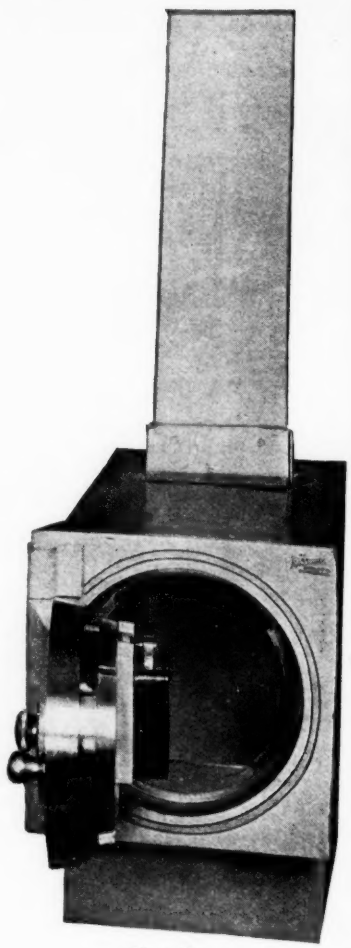
Baffle Fingers eliminate any chance to fish out envelopes.

One inch Solid Cast Steel Body.

Two inch Solid Burglar Proof Door.

Graduated Lock Spindle flush with door. Weight 400 pounds.

Complete Installation Instructions furnished



Chest Open

DIMENSIONS

10 in. square on front. 10 in. wide. 14. in. high at back. 18 in. deep over all. Capacity approximate 2000 cubic in.

OUR GUARANTEE

Every National Product is sold with the Guarantee that if for any reason they do not please the purchaser they may be returned with full credit and all expense will be paid by us.

INQUIRIES INVITED

We will be pleased to quote you promptly on Standard and Special Requirements.

$90.00 each Including Envelope Chutes

Freight allowed

Discounts in Quantities

The NATIONAL SAFE CO.

2345 E. 69th St., Cleveland, Ohio

Mail Today

Check Service Desired

NATIONAL SAFE CO.
2345 East 69th St., Cleveland, Ohio

☐ Enclosed please find my check for..... National Chests. It is understood that if they do not satisfy for any reason they may be returned with full credit.

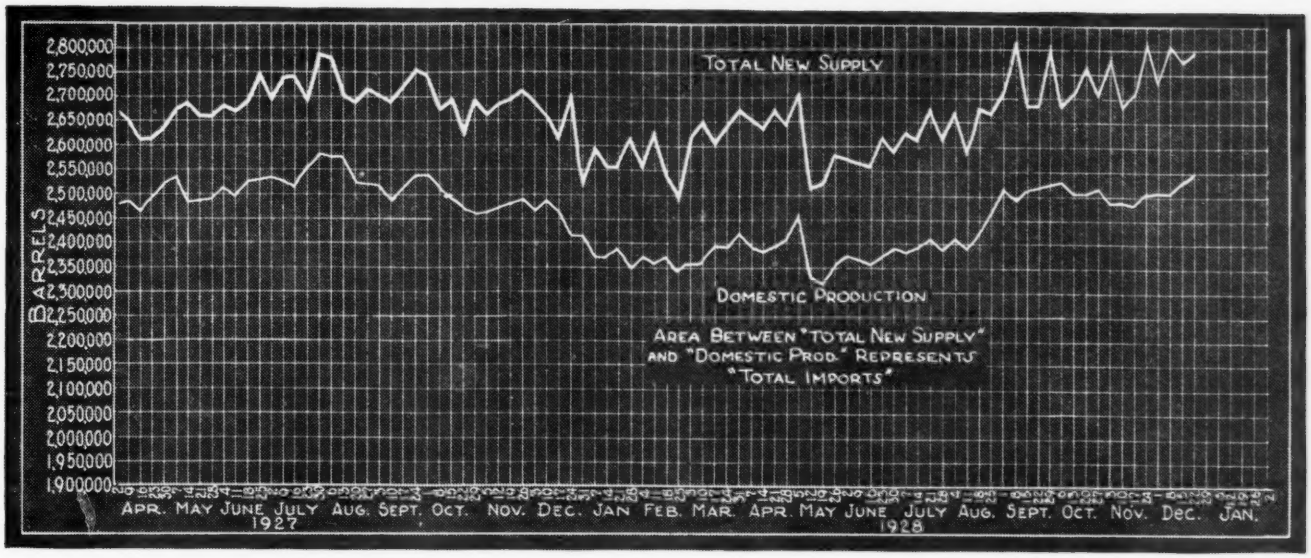
☐ Please send me further information on the protection offered by National Chests.

Name.....

Address.....

City.....State.....

Daily Average Crude Oil Production and Imports



Daily average gross output of United States, by fields, for week ending with dates below as compiled by American Petroleum Institute

PRODUCTION SUMMARY

	Dec. 22	Dec. 15
Production east of Rockies	1,847,150	1,849,200
Decrease		2,050
Total production in U. S.	2,550,750	2,546,800
Increase		3,950
Crude oil imports	248,000	234,429
Increase		13,571
Total crude supply	2,798,750	2,781,229
Increase		17,521

OKLAHOMA

	Dec. 22	Dec. 15
North Braman	2,550	2,700
South Braman	1,200	1,350
Blackwell	3,000	3,250
Hubbard	2,250	2,250
Thomas	1,000	1,050
Tonkawa	11,600	11,800
Garber	7,000	7,050
Burbank	24.350	25,000
Osage, outside Burbank	25,900	25,950
Cushing	20,750	19,950
Yale Jennings	7,800	7,650
Davenport	1,700	1,700
Bristow-Slick	20,100	20,100
North Okmulgee	14,300	14,350
Pearson	1,800	1,850
Lyons-Deaner	4,150	4,200
St. Louis	129,050	133,950
Allen Dome	28,300	38,700
Cromwell	8,250	8,000
Maud	17,850	.....
Papoose	3,600	4,000
Wewoka	5,300	5,350
Seminole	42,250	41,250
Bowlegs	46,500	47,400
Searight	9,950	10,100
Little River	84,850	87,950
Earlsboro	73,200	75,300
Duncan district	7,500	7,500
Graham	4,650	4,700
Fox	1,500	1,550
Healdton	13,450	13,500
Hewitt	8,900	8,900
Scholem Alechem	14,350	14,350
Others	55,750	64,350
Total, Oklahoma	704,650	707,050
Decrease		2,400

KANSAS

	Dec. 22	Dec. 15
Greenwood County	24,300	24,800
Florence-Covert	1,000	1,000
Peabody-Elbing	3,250	3,250
Eldorado-Towanda	12,900	12,900
Augusta-Fox-Bush	3,200	3,200
Rainbow Bend	1,200	1,250
Russell	3,700	3,700
Churchill	7,250	7,650
Oxford	6,750	6,650
Others	32,450	32,200
Total, Kansas	96,000	96,600
Decrease		600

NORTH LOUISIANA

	Dec. 22	Dec. 15
Homer	4,050	4,100
Haynesville	5,550	5,550
Caddo, light	9,150	9,100
Caddo, heavy	2,850	3,000
De Soto, Red River	4,100	4,100
Elm Grove	600	550
Bellevue	900	900
Cotton Valley	3,250	3,650
Urania	6,050	6,050
Pleasant Hill	500	500
Total, North Louisiana	37,000	37,500
Decrease		500

ARKANSAS

	Dec. 22	Dec. 15
El Dorado	4,950	4,950
Champagnolle	10,900	11,900
Smackover, light	7,100	7,100
Smackover, heavy	52,800	53,350
Stephens	1,050	1,050
Nevada	1,400	1,400
Lisbon	1,700	1,700
Others	100	100
Total, Arkansas	80,000	81,550
Decrease		1,550

TEXAS (Outside Gulf Coast)

Panhandle District

	Dec. 22	Dec. 15
Hutchinson County	29,100	28,900
Carson County	5,900	5,500
Gray County	22,500	23,000
Wheeler County	800	800
Others	2,900	3,000
Total, Panhandle District	61,400	61,200
Increase		200

North Texas

Burkburnett	10,000	11,000
Electra	14,150	13,000
Iowa Park and K-M-A	4,150	3,950
Wilbarger	31,950	33,000
Archer County	18,850	19,000
Montague-Cooke	9,900	10,050
Others	600	600
Total, North Texas	89,600	90,600
Decrease		1,000

West Central Texas

	Dec. 22	Dec. 15
Stephens County	7,400	8,000
Eastland-Desdemona	6,800	6,950
Brown County	9,800	9,950
Coleman County	3,850	3,950
Callahan County	3,600	3,750
Shackelford County	10,400	10,250
Young County	8,250	8,500
Throckmorton County	800	750
Palo Pinto County	400	400
Jack County	1,400	1,200
Others	700	700
Total, West Central Texas	53,400	54,400
Decrease		1,000

West Texas

Jones County	6,300	6,500
Mitchell & Scurry Counties	2,700	2,650
Howard County	36,600	36,600
Reagan County	18,100	17,150
Crane and Upton Counties	52,100	52,100
Crockett County	2,650	2,750
Pecos County	71,800	71,800
Winkler County	153,650	147,800
Others	1,800	1,950
Total, West Texas	345,700	339,300
Increase		6,400

East Central Texas

Mexia	6,250	6,300
Currie	500	500
Richland	500	500
Wortham	1,450	1,500
Corsicana-Powell	9,850	9,900
Boggy Creek	2,450	2,800
Nigger Creek	700	700
Total, East Central Texas	21,700	22,200
Decrease		500

Southwest Texas

Luling	13,450	13,300
Lytton Springs	1,000	1,000
Somerset	700	700
Laredo District	10,000	9,850
Dale	900	900
Salt Flat	7,750	7,100
Others	1,200	1,100
Total, Southwest Texas	35,000	33,950
Increase		1,050
Total, Texas—(Outside Gulf Coast)	606,800	601,650
Increase		5,150

GULF COAST

Coastal Texas

West Columbia	7,300	7,400
Damon Mound	950	850
Big Creek	2,600	2,800
Boling	2,450	2,900
Blue Ridge	5,400	4,500
Pierce Junction	11,000	12,200
Humble	3,600	3,500
Goose Creek	6,450	6,400
South Liberty	6,050	6,300
Hull	10,200	10,350
Saratoga	950	950
Batson	1,300	1,300
Barber's Hill	1,050	950
Sour Lake	3,000	3,000
Spindletop	36,550	37,450
Orange County	3,500	3,200
Sugarland	4,650	4,750
Others	4,600	3,700
Total, Coastal Texas	111,600	112,500
Decrease		900

Coastal Louisiana

Vinton	4,000	4,200
Sulphur Dome	3,800	4,000
Lockport	3,750	3,900
Sweet Lake	1,200	1,200
Evangeline	850	850
East Hackberry	4,900	5,050
Edgerly	1,000	1,000
Sorrento Dome	1,200	1,200
Others	1,300	1,500
Total, Coastal Louisiana	22,000	22,900
Decrease		900
Total Gulf Coast	133,600	135,400
Decrease		1,800

ROCKY MOUNTAIN

Wyoming

Salt Creek	31,900	33,200
Grass Creek	2,400	2,350
Elk Basin	900	800
Big Muddy	2,600	2,550
Lost Soldier	3,650	3,650
Rock Creek	2,300	2,200
Lance Creek	300	350
Oregon Basin	3,050	3,050
Others	5,650	5,750
Total, Wyoming	52,750	53,900
Decrease		1,150

Montana

Cat Creek	1,500	1,550
Sunburst	7,950	7,950
Pondera	1,950	1,800
Others	100	50
Total, Montana	11,500	11,350
Increase		150

Colorado

Moffat (Craig)	900	1,200
Fort Collins	2,200	2,100
Florence	1,300	1,300
Others	2,300	2,350
Total, Colorado	6,700	6 950
Decrease		250

New Mexico

Table Mesa	250	100
Hogback	500	500
Artesia	1,100	1,100
Rattlesnake	1,200	1,950
Others	100	100
Total, New Mexico	3,150	3,750
Decrease		600
Total, Rocky Mountain	74,100	75,950
Decrease		1,850

California

Santa Fe Springs	100,000	92,500
Long Beach	187,000	190,000
Huntington Beach	50,200	50,200
Torrance	15,500	15,500
Dominguez	10,000	10,000
Rosecrans	6,800	6,800
Inglewood	27,600	27,600
Midway-Sunset	75,000	75,000
Ventura Avenue	50,000	52,000
Seal Beach	29,000	29,500
Others	152,500	148,500
Total California	703,600	697,600
Increase		6,000
Eastern (Including Ill., Ind., Ky., O., W. Va., Pa., and N. Y.)	115,000	113,500
Increase		1,500

Compilation Of Mid-Continent Refinery Operations

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National Petroleum News

Mid-Continent Refinery Operations Week Ended December 21 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	North La.-Ark.	Total Week Ended Dec. 21	Total Week Ended Nov. 23
Plants Reporting	12	29	28	12	81	81
Da. Av. Cap. (bbls.)	92,000	160,200	125,100	54,900	432,200	432,200
Da. Cracking Capacity	30,700	52,600	17,200	22,700	123,200	123,200
Da. Av. Crude Runs	62,866 + 4.8	87,373 — 10.7	81,671 — 1.7	59,141 + 2.3	291,051 — 2.6	296,917
Da. Av. Other Oils	8,497 + 4.6	9,113 + 20.1	5,913 — 6.7	2,125 — 15.9	25,648 + 4.4	19,719
GASOLINE—Gallons						
Stocks, Dec. 14	13,207,000	38,387,000	23,951,000	6,704,000	82,249,000	68,732,000
Prod. 12-14 to 12-21	9,606,000 — 0.5	16,650,000 + 1.6	9,468,000 — 1.1	5,327,000 — 1.1	41,051,000 + 0.1	42,037,000
Ship. 12-14 to 12-21	8,682,000 — 7.4	15,300,000 + 4.0	8,720,000 + 4.7	5,274,000 — 4.2	37,976,000 + 0.1	37,509,000
Stocks, Dec. 21	14,131,000 + 7.0	39,737,000 + 3.5	24,699,000 + 3.1	6,757,000 + 0.8	85,324,000 + 3.7	73,260,000
Ratio Sales to Prod.	90.4%	91.9%	92.1%	99.0%	92.5%	89.2%
KEROSENE—Gallons						
Stocks, Dec. 14	7,102,000	6,372,000	1,848,000	642,000	15,964,000	15,701,000
Prod. 12-14 to 12-21	2,167,000 + 17.6	2,113,000 — 1.3	1,550,000 + 4.7	345,000 — 38.9	6,175,000 + 2.4	5,983,000
Ship. 12-14 to 12-21	2,150,000 — 19.3	1,929,000 + 44.4	1,488,000 — 7.9	320,000 + 22.1	5,887,000 + 0.1	5,214,000
Stocks, Dec. 21	7,119,000 + 0.2	6,556,000 + 2.9	1,910,000 + 3.4	667,000 + 3.9	16,252,000 + 1.8	16,470,000
Ratio Sales to Prod.	99.2%	91.3%	96.0%	92.8%	95.3%	87.1%
STOVE DISTILLATE—Gallons						
Stocks, Dec. 14	2,030,000	2,660,000	838,000	*54,000	5,582,000	6,367,000
Prod. 12-14 to 12-21	168,000 — 37.1	875,000 + 12.8	253,000 — 44.8	98,000 + 3.2	1,394,000 — 12.7	1,162,000
Ship. 12-14 to 12-21	185,000 — 28.3	845,000 — 29.5	390,000 + 61.8	106,000 + 30.9	1,526,000 — 14.2	1,229,000
Stocks, Dec. 21	2,013,000 — 0.8	2,690,000 + 1.1	701,000 — 16.3	46,000 — 14.8	5,450,000 — 2.4	6,300,000
Ratio Sales to Prod.	110.1%	96.6%	154.1%	108.2%	109.5%	105.8%
GAS OIL—Gallons						
Stocks, Dec. 14	5,105,000	28,428,000	13,081,000	5,676,000	52,290,000	58,127,000
Prod. 12-14 to 12-21	1,574,000 + 9.8	964,000 — 38.8	1,481,000 — 14.2	2,522,000 + 2.6	6,541,000 — 9.1	6,833,000
Ship. 12-14 to 12-21	1,658,000 — 14.4	2,382,000 + 3.0	2,299,000 + 3.5	2,837,000 + 2.2	9,176,000 — 0.7	8,035,000
Stocks, Dec. 21	5,021,000 — 1.6	27,010,000 — 5.0	12,263,000 — 6.3	5,361,000 — 5.5	49,655,000 — 5.0	56,925,000
Ratio Sales to Prod.	105.3%	247.1%	155.2%	112.5%	140.3%	117.6%
FUEL OIL—Gallons						
Stocks, Dec. 14	24,681,000	51,679,000	65,906,000	20,723,000	162,989,000	183,258,000
Prod. 12-14 to 12-21	5,728,000 + 0.8	5,499,000 — 14.6	11,165,000 — 5.0	9,350,000 + 6.9	31,742,000 — 2.7	31,389,000
Ship. 12-14 to 12-21	7,465,000 — 12.3	8,380,000 + 4.6	11,123,000 — 15.1	9,188,000 — 4.1	36,156,000 — 7.8	36,515,000
Stocks, Dec. 21	22,941,000 — 7.0	48,798,000 — 5.6	65,948,000 + 0.1	20,885,000 + 0.8	158,575,000 — 2.7	178,132,000
Ratio Sales to Prod.	130.3%	152.4%	99.6%	98.3%	113.9%	116.3%

Gasoline Produced by Various Methods, Week Ended December 21

	Kansas	% of Total	Oklahoma	% of Total	Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run	5,900,000	61.4	10,943,000	65.7	7,468,000	78.9	2,309,000	43.3	26,620,000	64.9
Cracked	3,081,000	32.1	4,867,000	29.2	1,481,000	15.6	2,535,000	47.6	11,964,000	29.1
Natural	625,000	6.5	840,000	5.1	519,000	5.5	483,000	9.1	2,467,000	6.0
Total	9,606,000		16,650,000		9,468,000		5,327,000		41,051,000	

+ or — columns are %change from previous week. *Revised

Heavy Drafts Continue on Mid-Continent Fuel Oil Stocks

Staff Special—By Telegraph
TULSA, Dec. 24

MID-CONTINENT refiners continued their heavy withdrawals of fuel oil from storage the week ended Dec. 21. Reports gathered by NATIONAL PETROLEUM NEWS from 81 plants with a still capacity of 432,200 barrels a day show a reduction in stocks of 4,414,000 gallons to 158,575,000 gallons. This figure is 29,598,000 gallons below the peak stocks for the field reached Nov. 9 when the 81 plants held in reserve 189,173,000 gallons of fuel which equalled approximately 45.5 days' supply at the rate of shipment being maintained at that time. Current stocks now represent only 30.7 days' supply, a reduction of almost 15 days' supply in the past month and a half.

Refiners in Oklahoma and Kansas reported all of the reductions in fuel

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended Dec. 21. Change in stocks figured from Nov. 23.

	Gallons
GASOLINE	
Production	165,035,000
Shipments	152,971,000
Net change in stocks	+12,064,000
Ratio sales to production	92.7%
KEROSENE	
Production	24,455,000
Shipments	24,673,000
Net change in stocks	—218,000
Ratio sales to production	100.9%
STOVE DISTILLATE	
Production	5,338,000
Shipments	6,188,000
Net change in stocks	—850,000
Ratio sales to production	115.9%
GAS OIL	
Production	29,515,000
Shipments	36,785,000
Net change in stocks	—7,270,000
Ratio sales to production	124.6%
FUEL OIL	
Production	128,488,000
Shipments	148,045,000
Net change in stocks	—19,557,000
Ratio sales to production	115.2%

stocks. Kansas refiners drew 1,500,000 gallons of fuel from their stocks, cutting their reserves to 22,944,000 gallons representing about 21 days' supply. Oklahoma refiners drew 3,000,000 gallons from stocks, cutting storage to 48,798,000 gallons which represents about 40 days' supply. Shipments were almost even with production in both Texas and North Louisiana and Arkansas.

Reporting refiners also reduced their stocks of gas oil 2,600,000 gallons to 49,655,000 gallons.

At the time fuel oil stocks were at their peak Nov. 9, gas oil stocks totaled 56,288,000 gallons, about 6,600,000 gallons greater than at present. During the last week every group in the field drew on gas oil stocks.

Shipments of stove distillate for furnace oil use were well above the level of production for the week causing continuation of the steady decline in stocks of this product. Total stocks Dec. 21 were 5,450,000 gallons as compared with 9,662,000 gallons carried by the same group of plants a year ago. This year both refiners and buyers have paid less attention to stove distillates and have been turning to heavier products for use as furnace oils.

Shipments of gasoline were almost identical with those reported in the week ended Dec. 14. Total shipments for the week were 37,976,000 gallons as compared with 37,921,000 gallons the previous week. Gasoline production likewise was almost unchanged, totaling 41,051,000 gallons as compared with 41,002,000 gallons the previous week.

The increase in stocks of approximately 3,000,000 gallons may be considered normal for this season of the year by the group of plants reporting. In the last four weeks gasoline stocks have increased 12,064,000 gallons, almost 3,000,000 gallons per week.

Total gasoline stocks held by the 81 plants Dec. 21 were 85,324,000 gallons representing 15.7 days' supply at the current rate of shipment. On Dec. 23, 1927, the same group of plants reported stocks totaling 76,932,000 gallons which although 8,000,000 gallons below the present level, represented 19 days' supply at the lower rate of shipments being maintained then.

Stocks of kerosene were increased 300,000 gallons to 16,252,000 gallons, all groups shipping almost as much as was manufactured.

Crude runs for the week averaged 291,051 barrels a day as compared with 298,676 barrels per day the previous week.

Union Oil Co.'s four planes since April of this year have totaled 650 hours in the air and traveled more than 60,000 miles. This company now has four men in the technical relations department, who qualify as pilots.

"QUICK-TOP" CARRYING CAN

HERE is the can that saves time and speeds up deliveries by its quick acting top—opens on one-eighth turn. Leak proof, gives lasting service. Answers all requirements better than any can yet produced. Made in black steel, painted in desired color, or hot-dip galvanized. Electric welded construction.

Perfectly balanced, carries nicely, pours smoothly, large handles easily gripped. Strong pressed chime permits dragging and banging without damage. Deeply concaved bottom prevents alteration of capacity, accurately calibrated to measure.

If you want to be convinced, send for a sample can; if you don't think it's the best can you ever saw or used, send it back, at our expense.

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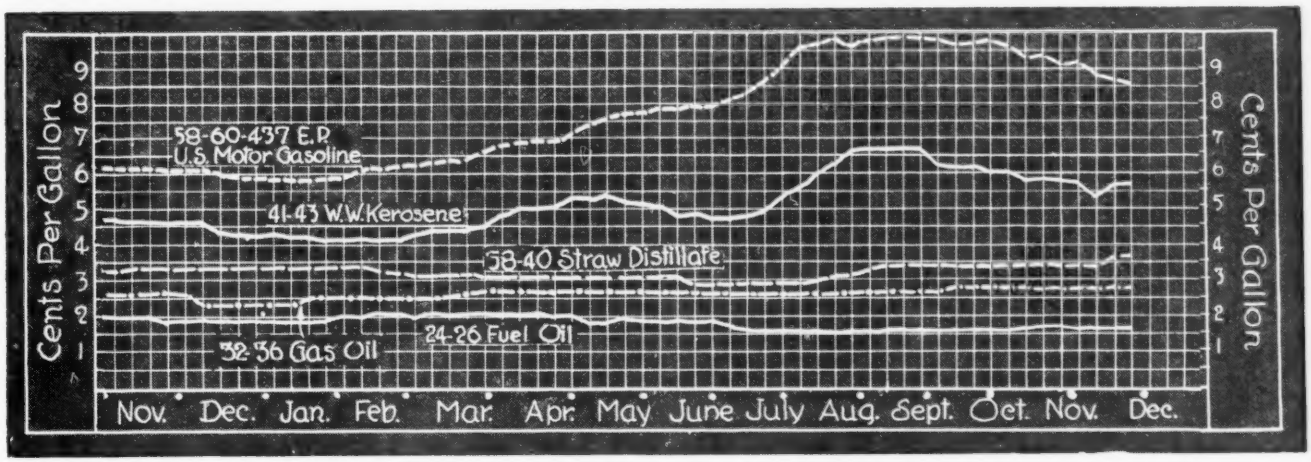
Refinery - Tank Wagon Markets

National Petroleum News

Current Prices of Principal Mid-Continent Refined Products



Prices shown are on Group 3 basis and extended to date shown in Refinery Market Tables Section of this issue

Demand for Mid-Continent Bright Stock Is Active; Supply Is Scarce

Staff Special
TULSA, Dec. 22

AN EXCEPTIONALLY heavy and in some quarters unexpected demand for Mid-Continent bright stock for both domestic and export shipment caused advances of 1 to 2 cents a gallon and enlivened an otherwise dull Mid-Continent refinery market for the week ended Dec. 22. Virtually every maker of bright stock in the Oklahoma field especially reports being sold up and several have committed much of their January production.

Neutral oils and waxes showed little change over the week, either in price or demand.

Refined gasolines were in the grip of the usual pre-holiday buying lull but prices were generally unchanged. One export buyer obtained 250,000 gallons of 64-66, 375 e. p. gasoline from a Mid-Continent refiner, while another company was reported inquiring in Texas for up to 2,000,000 gallons of gasoline, but details of both the sale and the inquiry were not revealed prior to close of business.

Natural gasolines swung upward late in the week under the stimulus of active buying from several sources, and much of the distress goods were taken off the market.

Kerosenes were quiet in demand at unchanged prices. Distillates and gas oils were stronger at unchanged price levels, while fuel oils were showing more activity in all areas.

Neutral Oils and Cylinder Stocks

A large eastern company within the last week or 10 days inquired for approximately 75 cars of bright stock in the Mid-Continent. The inquiry was quietly circulated and one or two bright stock manufacturers gave what assistance they could in helping the company obtain the goods. Bright stocks have been extremely low all fall from a storage standpoint and last reports indicated the buyer had succeeded in obtaining only about half the required quantity. Prices for 150-160 vis. 210 bright stock moved from a range of 27-28 cents to 29 cents and refiners almost without exception reported they were out of the market indefinitely.

It was known that some of the oil was to be shipped through the entire month of January, and the price paid was 29 cents a gallon.

The recent advances in Pennsylvania crude oils and the resultant advance in bright stock prices by Pennsylvania refiners and their relatively low stocks are probably the direct cause for the buying and higher prices in the Mid-Continent.

Gasolines

Jobbers throughout the Mid-Continent's marketing territory have been buying strictly from hand to mouth this week and have been keeping their storage as low as possible for inventory purposes the first of the year. Spot gasoline demand, accordingly, has been light in all areas of the Mid-Continent. Many jobbers have been letting their contracts take care of their entire requirements and have shown no interest whatever in the spot market.

The purchase of 250,000 gallons of 64-66, 375 e. p. gasoline by an exporter was announced Dec. 21. The order was placed with one refiner and was understood to have been primarily to take the refiner's surplus off his hands. Price paid was not announced.

THEY "PASS UP" THE CROWDED STATION!
With stations on every likely corner business won't wait on slow service. Sell your customers coupon books—keep the attendant at the pump with less change making, speed up the rush hour—and get a bigger percentage of steady, patient, regular customers. Write us for full information and samples of Allison Coupon Books.
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St. Paul Minnesota

"What About The OILGRAM?"

—asked the executive of a gasoline company on the west coast recently of a Tulsa oil man. His answer was . . .

"If you were to wire me for Mid-Continent gasoline prices today, I would phone a member of the OILGRAM staff, and my reply to you would be the *gist of what he told me.* The OILGRAM staff is in direct and close contact with the markets almost every hour of the business day. *They know their business.*"

You too, can have the benefit of this close contact with all phases of the market at all the principal refining and marketing centers.

The service costs only $25 a quarter, or $75 a year, payable in advance. Approximately 30 cents a day—less than the cost of one wire or one phone call.

Avail yourself of this fast, daily market service today—send your order with check to the nearest mailing point.

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CHICAGO—35 East Wacker Drive

NEW YORK—342 Madison Avenue

CLEVELAND—1213 West Third St.

The other export inquiry apparently had not developed into definite transactions prior to close of business, Dec. 22. Prices offered were not revealed, but the amount sought was understood to be around 2,000,000 gallons.

Domestic demand for higher gravities has improved somewhat because of the winter weather, while demand for low gravity goods is extremely light at the present time.

Natural Gasolines

A buying flurry developed on natural gasolines, Dec. 20 and 21, and prices which had been on the downturn for several weeks were reversed before the end of the week and had shown a definite trend upward. One company bought in excess of 75 cars of grade AA from a Tulsa sales company on Dec. 20 and even a larger quantity from another company with which it is indirectly affiliated. The purchases did not become generally known until the following day, but within a few hours had caused a complete change in the picture. Several other buyers entered the market and prices soon responded.

The heavy purchases on Dec. 20 were understood to be for shipment south and probably will be used for blending with export gasolines in storage prior to shipment abroad.

By the close of business Dec. 22 virtually all the full specification natural gasolines for spot shipment had been taken off the market. Sour gasoline continued to have some effect on the general market, however, due to the fact that demand for the commodity has not been in step with production at this season.

Kerosenes, Distillates, Gas Oil

Refiners for the most part report movement of kerosenes has been slow throughout the entire week. There have been no export inquiries, and the domestic trade apparently has had little cause to buy the commodity. Virtually no demand is reported through the farming belt of the Middle West. Prices remained unchanged in all areas.

Demand for distillates continued strong, a majority of refiners reported. A few have withdrawn entirely from the market and have announced their contracts will take care of their production for the next month or two. Low flash and low cold test distillates have been in exceptionally good demand and goods for spot shipment are scarce. One large company operating plants in Kansas and Illinois was understood to have advanced its quotation for distillate approximately 0.25 per cent a gallon this week.

Gas oils also have been in good demand, a majority of the trade reported. Prices have been generally unchanged but sales have been suf-

ficiently heavy to cause drafts on stocks in most areas.

Fuel Oils

No price changes were made in fuel oils during the week. Demand continued to be heavier than production in most quarters. A few inquiries for fuels for January shipments were being received but the volume has not been large to date. Most of this business is expected to be placed between Christmas and New Year's. The few quotations made for next month have been about in line with the spot market.

One large refining company which has been operating to some extent on west Texas crude and accordingly has had considerable low cold test fuel to sell was understood to have advanced prices 2.50 cents a barrel late in the week. This company's fuel has been moving for some months in competition with Oklahoma and Kansas fuel oils. The announcement of the advance in price came too late in the week for any reaction to be noticed in the Oklahoma market.

Shreveport-Eldorado Merger Completed

SHREVEPORT, Dec. 22.—Approval of the merger of the Shreveport Producing & Refining Co. with the Shreveport-Eldorado Pipe Line Co. was voted Dec. 20 by stockholders of the two companies. The merger has been in process of completion for the past year. The officers of the merged company, which will be known as the Shreveport-Eldorado Pipe Line Co., are: K. E. Merren, president; Guy Oakes, vice president, and B. H. Gray, secretary-treasurer.

The refinery near Shreveport will be operated as the refining division of the pipe line company, and J. B. Adkins will be in charge of refining and marketing. The refinery will market its products under the trade name of "Sparco," which was used prior to the merger.

The Shreveport Producing & Refining Co. has been supplied since its organization by the Shreveport-Eldorado Pipe Line Co. and the merger was reported as being for the purpose of strengthening both companies. Both the refining company and the pipe line company were reported to have had a successful year financially.

Will Manage Lion Sales

TULSA, Dec. 24.—T. M. Martin, manager of stations for the Mid-Continent Petroleum Corp., with headquarters at St. Louis, has resigned to become a vice president of the Lion Oil & Refining Co., of El Dorado, Ark. Mr. Martin's resignation will be effective on Jan. 15. His successor has not been announced.

In his new position with Lion Mr. Martin will be in charge of sales.

Chicago Resale Market

Holiday Quiet Prevails

Staff Special

CHICAGO, Dec. 22

THE usual pre-holiday quietness had apparently overspread the Chicago gasoline market this week and spot sales were at a minimum. Contract gasoline demand was fair in most quarters. The majority of jobbers were ordering out goods only for their immediate requirements and were keeping their storage down to bedrock.

This was partly due to the fact that the time for taking inventories is at hand and also because of the opinion of many jobbers that while gasoline prices may not go much lower, they are hardly likely to advance for some time.

Gasoline prices were still on the downward trend in Chicago this week and the low range of the market dropped approximately 0.125 cent. The bulk of sales of 58-60 U. S. Motor gasoline were at 8.125 to 8.50 cents until Dec. 20 and at 8 to 8.50 cents as the week closed. This is the first time since July 10, 1928 that *Platt's Oilgram* has shown an 8-cent price in it's 58-60 U. S. Motor gasoline range.

The major Oklahoma refiners maintained their spot price on 58-60 U. S. Motor gasoline at 8.50 cents. The smaller Oklahoma refiners were asking 8.25 cents in most instances with a few at 8 cents. Refiners local to Chicago were selling mostly at 8.25 to 8.50 cents, Group 3. Carload marketers were, in general, asking 8 to 8.25 cents for Oklahoma and north Texas 58-60 U. S. Motor and 7.75 cents, Group 3, for west Texas goods. Some 56-58, 437 e.p. gasoline out of west Texas was moving at around 7.50 cents, Group 3.

Most of the carload marketers reported they could obtain Oklahoma and north Texas U. S. Motor gasoline for resale at 7.75 and 7.875 cents. These goods, they said, were meeting full motor specifications. Several marketers were "selling short" at 7.75 cents, but others expressed doubt that they could cover these sales at a profit.

The demand for higher gravity gasolines was quiet all week. Some export buying was reported in the Mid-Continent but this had no apparent effect on the local market. Prices on all grades were off 0.125 to 0.25 cent over the week.

The 60-62, 437 e.p. gasoline moved at 8.375 to 8.75 cents until Dec. 20 and at 8.25 to 8.75 cents thereafter. The bulk of sales of 60-62, 400 e.p. were at 8.875 to 9.25 cents on Dec. 22 after moving at 9 to 9.25 cents most of the week. The 64-66, 375 e.p. grade was 9.75 to 10 cents until Dec. 19 and 9.50 to 9.75 cents thereafter.

Seasonal demand was reported for kerosene in most quarters. Most refiners reported themselves in good shape as to stocks, and prices were holding fairly firm. Most sellers were getting 5.50 to 5.75 cents for 41-43 w.w. kerosene until Dec. 19 when the bulk of them who were at 5.75 cents dropped to 5.625 cents. Price range on Dec. 22 was 5.50 to 5.625 cents. Several refiners reported they were still behind on shipments.

Distributors of furnace oils to home burner owners reported doing a rushing business. Near zero temperature of the past week brought the best demand of the year, so far, said most dealers. One distributor reported doing 10 per cent more business this winter than last, in spite of the mildness of the weather to date.

The majority of refiners and marketers in the city reported enjoying an excellent call for furnace oils, especially distillate and gas oil. Both distillate and low cold test, low flash gas oils were becoming difficult to obtain for spot shipment. Several refiners reported behind on shipments of these oils. Demand for high gravity low cold test fuel was also good, most of the trade reported. Industrial fuel oil demand was about normal for the season.

Distillate prices were 0.125 cent higher in some quarters as the week closed, while gas and fuel oils were generally firm at unchanged prices. The 38-40 straw distillate was at 3.50 to 3.625 cents Dec. 22 and moved mostly at 3.50 cents flat previously. Prices on gas and fuel oils were unchanged over those prevailing at the close of last week.

Temperatures will be moderate for the season next week in the Standard of Indiana territory, although becoming colder towards the close. Not much precipitation, is forecasted by the Chicago weather bureau.

TULSA, Dec. 22.—Harry L. Hughes salesmanager, and J. V. Brazier, of the Okmulgee plant of the Barnsdall Refineries, Inc., are spending the holidays in southern Texas on a hunting trip.

Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, F. O. B. refinery, except where $ is shown

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

OKLAHOMA (Weighted Average Prices)

	Prices Dec. 24	Prices Dec. 17	Prices Dec. 10
58-60 U.S. Motor, 437 e.p.	8.5074	8.6250	8.7976
60-62 437 e.p. gasoline....	8.8029	8.9886	8.9791
60-62 400 e.p. gasoline....	9.7500	8.9500	9.2500
64-66 375 e.p. gasoline....	10.2500	10.4500	10.4167

All above weighted average prices are effective on Monday on the dates shown at the top of the columns.

THE desire on the part of most jobbers to keep their inventories low until after Dec. 31 is evidenced in part by the thinness of the spot market the past week. While contract movement has been comparatively even, there has been a decided drop in buying in the open market for immediate shipment.

The price situation, however, has shown no material change. One large refiner in Oklahoma early in the week reduced his prices from 0.25 to 0.375 cent a gallon on all grades, which resulted in a reduction in the weighted average prices to around the quotation level of 8.50 cents by the major refiners in Oklahoma.

Sales of 58.60 U. S. Motor gasoline continue to range from 8 to 8.75 cents a gallon with the bulk of orders going at prices which give a weighted average close to 8.50 cents.

(The above weighted averages are made up from confidential daily reports of all gasoline spot market sales—for shipment in 10 days—from Oklahoma refineries only and representing 85.2 per cent of the state's refining capacity. The above prices do not include prices on sales for "over the month," for contracts, or to brokers or on shipments to company owned stations. Records of the reporting refiners are checked periodically to verify the accuracy of their reports.—Editor.)

OKLAHOMA	Prices Dec. 24	Prices Dec. 17	Prices Dec. 10
48-50 450 e.p. naphtha...	†8.00	†8.00	†8.00
50-52 450 e.p. naphtha...	†8.00	†8.00	†8.00
56-58 450 e.p. gasoline....	8.25	8.25 – 8.75	8.25 – 8.75
58-60 450 e.p. gasoline....	8.50	8.50 – 8.875	8.50 – 8.875
64-66 390 e.p. gasoline....	9.25 – 9.50	9.375– 9.625	9.875–10.125
68-70 350-360 e.p. gasoline	10.00 –10.25	10.50 –10.75	10.50 –10.75
PENNSYLVANIA			
52-54 Naphtha.....	‡9.25 –10.00	9.50 –10.375	9.25 –10.25
54-56 Naphtha.....	‡9.25 –10.00	9.50 –10.375	9.25 –10.25
58-60 U.S. Motor 437 e.p.	10.25 –10.50	10.50 –10.75	10.50 –10.75
60-62 400-410 e.p. gasoline	10.75 –11.50	10.875–11.50	11.00 –11.75
64-66 390 e.p. gasoline....	11.75 –12.50	12.00 –12.50	12.00 –12.50
68-70 Str-run gas. 350-360 e.p.....	12.75 –13.50	13.00 –13.50	12.75 –13.75

‡One seller quoting.

OHIO (Quotations of S. O. Ohio)			
58-60 U.S. Motor, delivered in Ohio, 3c tax to be added	11.75	11.75	11.75
KANSAS (F. O. B. refinery Kansas destination)			
58-60 U.S. Motor 437 e.p.	8.75	8.75	9.00
60-62 400 e.p. gasoline....	9.50	9.50	9.75
64-66 375 e.p. gasoline....	10.25	10.25	10.50 –10.75
NORTH TEXAS			
48-52 450 e.p. naphtha...	†7.50	†7.50	†7.75
56-58 450 e.p. gasoline....	†7.50 – 7.75	†7.50 – 7.75	†7.75
58-60 450 e.p. gasoline....	†7.50 – 7.75	†7.50 – 7.75	†7.75
58-60 U.S. Motor 437 e.p.	7.75 – 7.875	7.75 – 8.00	8.25 – 8.50
60-62 400 e.p. gasoline....	8.50 – 8.75	9.00 – 9.25	9.25
64-66 390 e.p. gasoline....	9.00 – 9.25	9.25 – 9.50	9.50
64-66 375 e.p. gasoline....	9.50	9.50 – 9.75	9.75
68-70 350-360 e.p. gasoline	10.00 –10.25	10.00 –10.25	10.00 –10.25

	Prices Dec. 24	Prices Dec. 17	Prices Dec. 10
NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
58-60 U.S. Motor gasoline	8.50	8.75	9.00
ARKANSAS (Arkansas destination only)			
56-58 450 e.p. gasoline....	8.00	8.50	8.50
58-60 450 e.p. gasoline....	8.25	8.50	8.50
58-60 U.S. Motor 437 e.p.	8.50 – 8.75	8.75	8.75 – 9.00
‡CALIFORNIA			
54-58 U.S. Motor 437 e.p.	9.00 –12.50	9.00 –12.50	9.00 –12.50
‡‡58-61 375-400 e.p. gasoline	10.00 –13.50	10.00 –13.50	10.00 –13.50
42-45 Eng. dis. 445-480 e.p.....	7.00 – 8.00	7.00 – 8.00	7.00 – 8.00

‡3c tax to be added to California gasoline prices if used in state.
‡‡Gravity changed from 437 e.p. to 375-400 e.p. Dec. 17.

NATURAL GASOLINE

(Note: End point of all grades, not over 375 F. Corrosion test adopted Oct. 1, 1927; A.S.T.M Method D130-27T; doctor test, July 2, 1928.)

OKLAHOMA			
Grade AA, 80-87.9, 90% Recovery.....	7.50	7.75 – 8.00	8.375– 8.50
Grade A, 72-79.9, 90% Recovery.....	8.375– 8.625	8.625– 8.75	9.00
Grade BB, 84-92, 85% Recovery.....	6.50	6.50 – 6.75	7.25 – 7.50
Grade B, 76-83.9, 85% Recovery.....	6.75 – 7.00	7.25 – 7.50	7.75 – 8.00
Grade C, 80-92, 78% Recovery.....	6.50	6.50	7.00 – 7.25
NORTH TEXAS (F. O. B. Breckenridge)			
Grade AA, 80-87.9, 90% Recovery.....	7.50	7.75 – 8.00	8.375– 8.50
Grade A, 72-79.9, 90% Recovery.....	8.375– 8.625	8.625– 8.75	9.00
Grade BB, 84-92, 85% Recovery.....	6.50	6.50 – 6.75	7.25 – 7.50
Grade B, 76-83.9, 85% Recovery.....	6.75 – 7.00	7.25 – 7.50	7.75 – 8.00
Grade C, 80-92, 78% Recovery.....	6.50	6.50	7.00 – 7.25
NORTH LOUISIANA (F. O. B. Monroe District)			
Grade AA.....	†8.00	†8.25 – 8.50	†8.75
Grade BB.....	†6.75	†7.50	†7.75 – 8.00
Grade C.....	†6.50	†7.50	†7.50 – 7.75
CALIFORNIA			
75-85, 375-390 e.p. blend	8.00 – 8.50	7.50 – 8.25	7.25 – 7.75

MOTOR FUEL BLENDS

OKLAHOMA			
64-66 Blend 437 e.p.....	8.00 – 8.25	8.00 – 8.25	8.25 – 8.50

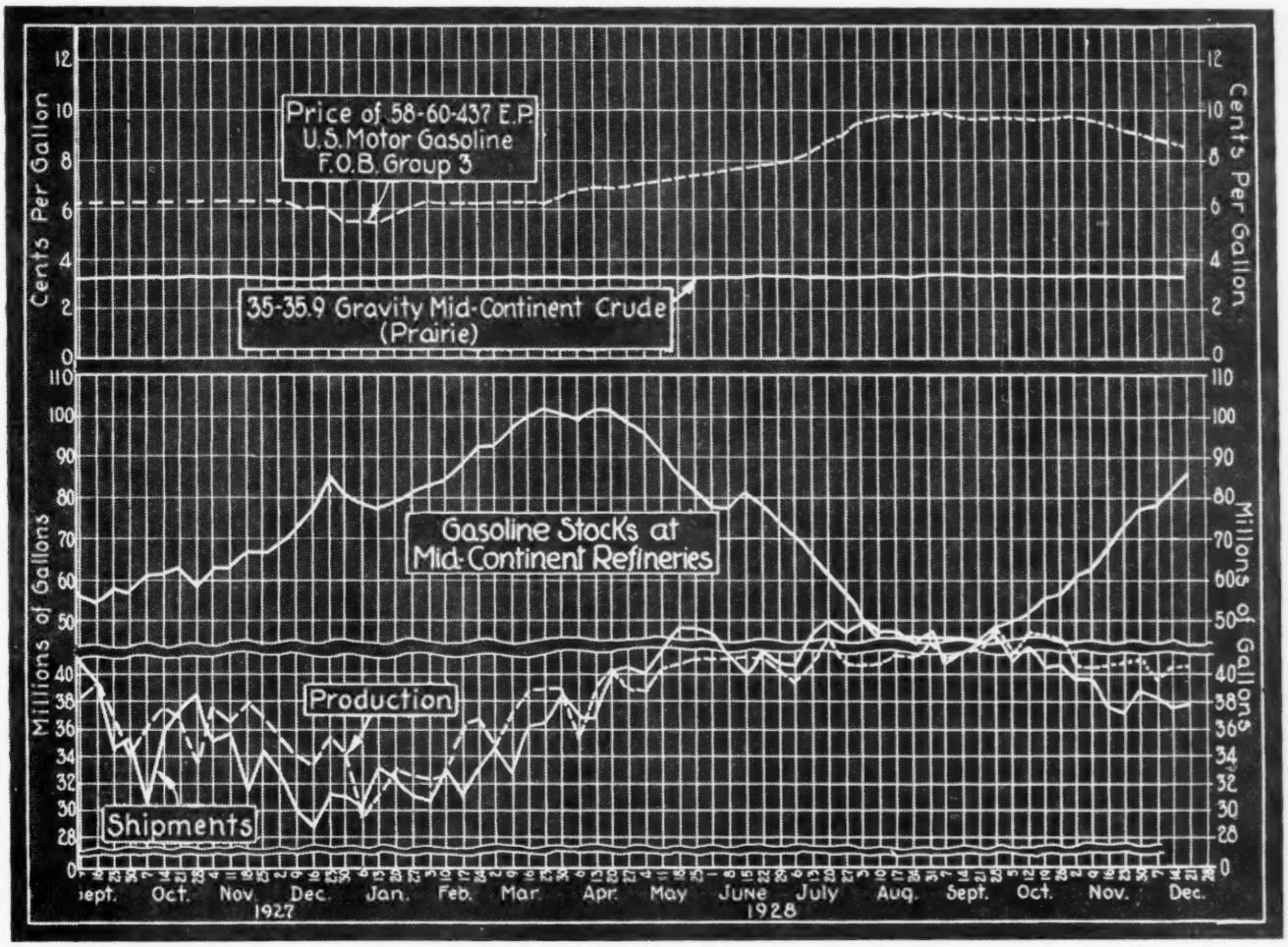
BURNING OILS

PENNSYLVANIA			
45 w.w. kerosene.....	7.25 – 7.625	7.25 – 7.75	7.25 – 7.625
46 w.w. kerosene.....	7.50 – 8.00	7.625– 8.25	7.625– 8.00
47 w.w. kerosene.....	7.75 – 8.50	7.75 – 8.75	7.75 – 8.25
300 mineral seal.....	7.375– 7.75	7.25 – 7.75	7.25 – 7.75
OKLAHOMA			
41-43 w.w. kerosene.....	5.50 – 5.75	5.50 – 5.75	5.625– 5.75
42-44 w.w. kerosene.....	6.25	6.25	6.25
KANSAS (F. O. B. refinery Kansas destination)			
41-43 w.w. kerosene.....	5.75 – 6.00	5.75 – 6.00	6.00
42-44 w.w. kerosene.....	6.25 – 6.50	6.25 – 6.50	6.25 – 6.50
NORTH TEXAS			
40-42 w.w. kerosene.....	5.375– 5.50	5.375– 5.50	5.50
41-43 w.w. kerosene.....	5.625– 5.75	5.625– 5.75	5.75
NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
41-43 w.w. kerosene.....	6.25 – 6.50	6.50	6.75
ARKANSAS (Arkansas destination only)			
42-44 kerosene.....	6.50	6.75	6.75 – 7.00
CALIFORNIA			
38-40 w.w. kerosene.....	6.50 – 7.00	6.50 – 7.00	6.25 – 7.00

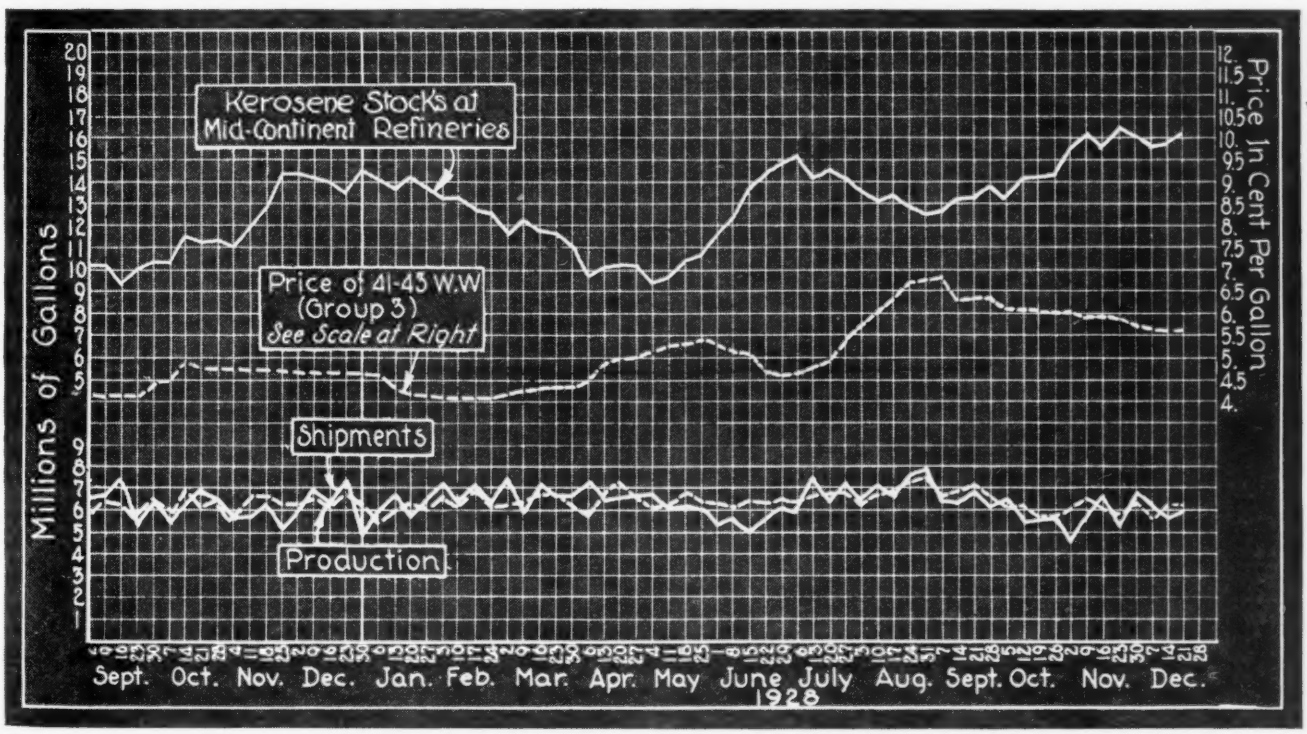
†Prices nominal ††Only one refiner quoting *Quotations only **Represents both sales and quotations

Barometer of Mid-Continent Refinery Market—Week Ending December 21

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 81 Plants to National Petroleum News


Price of 58-60-437 E.P. U.S. Motor Gasoline F.O.B. Group 3
35-35.9 Gravity Mid-Continent Crude (Prairie)
Cents Per Gallon
Gasoline Stocks at Mid-Continent Refineries
Production
Shipments
Millions of Gallons
Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
1927
1928

Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and production are extended to date as shown in the table on page 92


Kerosene Stocks at Mid-Continent Refineries
Price of 41-43 W.W (Group 3) See Scale at Right
Shipments
Production
Millions of Gallons
Price In Cent Per Gallon
Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
1928

Refinery Markets on Wax, Lubricants and Heavy Oil Products

Prices given below are in cents per gallon, F. O. B. refinery, except where $ is shown

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

NEUTRAL OIL

PENNSYLVANIA	Prices Dec. 24	Prices Dec. 17	Prices Dec. 10
Vis.		**(Viscosity at 70°F.)**	
200 No. 3 Assoc. Filt.	28.00 –29.00	28.00 –29.00	28.00 –29.00
180 No. 3 Assoc. Filt.	25.00 –27.00	26.50 –27.00	25.00 –27.00
150 No. 3 Assoc. Filt.	22.00 –24.00	22.50 –23.00	21.00 –25.50
		(Non Viscous)	
34 Grav. 330-340 Flash	7.75 – 9.00	8.00 – 9.00	7.25 – 9.00
36 Min. Neut., 300-305 Flash	7.00 – 7.75	‡7.75	7.00 – 8.00

‡One seller quoting.

****OKLAHOMA**

Vis. Color		(Viscosity at 100°F.)	
100—No. 2	5.50 – 6.00	5.50 – 6.00	5.50 – 6.00
150—No. 3	7.50 – 8.50	7.50 – 8.50	7.50 – 8.50
150—No. 4	6.50 – 7.50	6.50 – 7.50	6.50 – 7.50
180—No. 3	8.75 – 9.50	8.75 – 9.50	8.75 – 9.50
180—No. 4	8.75 – 9.75	8.75 – 9.75	8.75 – 9.75
180—No. 5	8.50 – 9.50	8.50 – 9.50	8.50 – 9.50
200—No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
200—No. 4	9.25 –10.00	9.25 –10.00	9.25 –10.00
200—No. 5	8.50 – 9.00	8.50 – 9.00	8.50 – 9.00
220—No. 3	12.50 –13.50	12.50 –13.50	12.50 –13.50
220—No. 4	12.25 –12.50	12.25 –12.50	12.25 –12.50
220—No. 5	11.50 –12.00	11.50 –12.00	11.50 –12.00
240—No. 3	13.00 –13.50	13.00 –13.50	13.00 –13.50
240—No. 4	12.00 –13.00	12.00 –13.00	12.00 –13.00
240—No. 5	11.00 –13.00	11.00 –13.00	11.00 –13.00
280—No. 3	14.00 –15.50	14.00 –15.50	14.00 –15.50
280—No. 4	13.00 –14.00	13.00 –14.00	13.00 –14.00
280—No. 5	12.00 –13.00	12.00 –13.00	12.00 –13.00
300—No. 5-6	15.00 –17.00	15.00 –17.00	15.00 –17.00

GULF COASTAL

Vis. Color		(Viscosity at 100°F., pour test 0)	
100—No. 2 Pale	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50
200—No. 3 Pale	10.00 –10.75	10.00 –10.75	10.00 –10.75
300—No. 3 Pale	11.00 –11.75	11.00 –11.75	11.00 –11.75
500—No. 3½ Pale	12.50 –13.50	12.50 –13.50	12.50 –13.50
750—No. 4 Pale	15.50 –16.00	15.50 –16.00	15.50 –16.00
200—No. 5½ Red Oil	8.50 – 9.00	8.50 – 9.00	8.50 – 9.00
300—No. 5½ Red Oil	9.25 – 9.75	9.25 – 9.75	9.25 – 9.75
500—No. 6 Red Oil	10.50 –11.25	10.50 –11.25	10.50 –11.25
750—No. 6 Red Oil	13.50 –14.00	13.50 –14.00	13.50 –14.00

CALIFORNIA

Vis. Color		(Viscosity at 100°F.)	
100—No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
200—No. 3	11.50	11.50	11.50
300—No. 3	13.00	13.00	13.00
450—No. 3	15.50	15.50	15.50
550—No. 3	16.50	16.50	16.50
600—No. 3	17.00	17.00	17.00
200—No. 5	11.00	11.00	11.00
300—No. 5	12.00	12.00	12.00
400—No. 5	14.00	14.00	14.00
500—No. 5	15.00	15.00	15.00
600—No. 5	16.00	16.00	16.00
700—No. 7	18.00	18.00	18.00

CYLINDER STOCKS

****OKLAHOMA**

190-200 Vis. at 210° Brt. St.	31.00 –32.00	31.00 –32.00	31.00 –32.00
150-160 Vis. at 210° Brt. St.	29.00	27.00 –28.00	27.00 –28.00
600 E. St. 140-150 Vis.-210°	17.50 –18.00	17.50 –18.00	17.50 –18.00
600 St. Ref. Olive Green	8.50 –10.00	7.50 –10.00	7.50 –10.00
600 St. Ref. Dark Green	7.00 – 8.00	6.00 – 8.00	6.00 – 8.00
Black Oil	5.00	5.00	5.00

PENNSYLVANIA (1-inch Immersion Test)

600 Steam Refined	23.00 –24.00	21.00 –22.00	20.00 –21.00
650 Steam Refined	26.00 –30.00	25.00 –25.50	24.00 –25.00
680 Flash	29.00 –30.00	28.00 –28.50	27.00 –27.50
625 Flash	36.50 –40.00	39.00 –40.00	34.00 –39.00
600 Warren E	‡26.00	‡25.00	21.50 –24.00
600 Oil City E	24.50 –25.00	‡‡22.00 24.00	19.00 –23.00
600 D Filtered	‡29.00	‡30.00	25.50 –28.00
Cold Test Stock, 40-50p. p., 140-150 vis. at 210° 540-550 flash, No. 8 color	37.00 –38.00	36.00 –37.00	36.00 –37.00
40-50 p.p., 140-150 vis. at 210°, 540-550 flash, No. 6-6½ color diluted	36.00 –37.00	34.00 –36.00	34.00 –35.00

‡One seller quoting.
‡‡Two sellers quoting.

WAX

	Prices Dec. 24	Prices Dec. 17	Prices Dec. 10
PENNSYLVANIA Per pound, New York			
122-124 white crude scale	5.125– 5.25	5.125– 5.25	5.125– 5.25
124-126 white crude scale	5.25 – 5.50	5.25 – 5.375	5.25 – 5.375
OKLAHOMA			
**124-126 White Crude Scale	4.75 – 5.125	4.875– 5.125	4.75 – 4.875
CALIFORNIA			
White crude scale, per pound, ton lots	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50

FUEL OIL

PENNSYLVANIA (For outside Pittsburgh district)			
36-40 fuel oil	4.75 – 5.25	4.75 – 5.25	4.75 – 5.00
30-34 fuel oil	4.50 – 4.75	4.50 – 4.625	4.50 – 4.75
28-32 fuel oil	4.50 – 4.625	4.50 – 4.625	4.50 – 4.75
OKLAHOMA			
38-40 straw distillate	3.50 – 3.625	3.50 – 3.625	3.375– 3.50
36-38 straw distillate	3.375– 3.50	3.375– 3.50	3.25 – 3.375
32-36 gas oil, straw	‡2.50 – 2.875	†2.75 – 3.00	†2.625– 2.875
32-36 dark gas oil	‡2.75 – 3.00	‡2.50 – 2.875	‡2.50 – 2.75
28-30 fuel oil (in bbls.)	$0.85 – 0.90	$0.85 – 0.90	$0.85 –$0.90
26-28 fuel oil (in bbls.)	$0.675– 0.725	$0.675– 0.725	$0.675– 0.725
24-26 fuel oil (in bbls.)	$0.625– 0.675	$0.625– 0.675	$0.625– 0.675
22-26 fuel oil (in bbls.)	$0.55 – 0.625	$0.55 – 0.625	$0.55 – 0.625
18-22 fuel oil (in bbls.)	$0.55 – 0.60	$0.55 – 0.60	$0.55 – 0.60
16-18 fuel oil (in bbls.)	$0.55	$0.55	$0.55
14-16 fuel oil (in bbls.)	$0.525– 0.55	$0.525– 0.55	$0.525– 0.55

‡Zero cold test gas oil sells for 0.125 to 0.25 cent higher.

KANSAS (F. O. B. refinery Kansas destination)			
38-40 straw distillate	3.625– 3.75	3.625– 3.75	3.50 – 3.625
36-38 straw distillate	3.25 – 3.50	3.25 – 3.50	3.25 – 3.375
32-36 gas oil	2.75 – 3.00	2.75 – 3.00	2.75 – 2.875
24-26 fuel oil	*$0.75 – 0.80	*$0.75 – 0.80	*$0.75 – 0.80
18-22 fuel oil	*$0.70	*$0.70	*$0.70
NORTH TEXAS			
38-40 straw distillate	3.25 – 3.375	3.25 – 3.375	3.25 – 3.375
32-36 gas oil, cracked	2.375– 2.50	2.375– 2.50	2.375– 2.50
32-36 St. reduced gas oil	2.375– 2.50	2.375– 2.50	2.375– 2.50
24-26 fuel oil (in bbls.)	$0.525– 0.55	$0.525– 0.55	$0.525– 0.55

NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
32-36 gas oil, dark	3.00	3.00	3.00
32-36 gas oil, straw	3.00 – 3.25	3.00 – 3.25	3.00 – 3.25
16-20 fuel oil (in bbls.)	$0.70	$0.70	$0.70
ARKANSAS (Arkansas destination only)			
32-36 gas oil, straw	3.00 – 3.25	3.00 – 3.25	3.00 – 3.25
32-36 gas oil	3.00	3.00	3.00
28-32 gas oil	2.75	2.75	2.75

CALIFORNIA (F. O. B. San Joaquin Valley. At San Francisco, 4c per bbl. more)

14-18 fuel oil (per bbl.)	$0.60 –$0.70	$0.60 –$0.70	$0.60 –$0.70
14-18 Bunker oil (per bbl.)	$0.70 –$1.00	$0.70 –$1.00	$0.70 –$1.00
30-34 gas oil (per bbl.)	$1.00 –$1.15	$1.00 –$1.15	$1.00 –$1.15
27 Plus Diesel oil (per bbl.)	$0.90 –$1.00	$0.90 –$1.00	$0.90 –$1.00

PETROLATUMS

PENNSYLVANIA (In barrels, carload lots, f. o. b. refinery. In tank cars ⅛c to ¾c per pound less.) Two refiners quoting.

Snow White	8.50 – 8.75	8.50 – 8.625	8.50 – 8.625
Lily White	7.625– 7.75	7.625	7.625
Cream White	6.625– 6.75	6.625	6.625
Light Amber	3.625– 3.875	3.625– 3.875	3.625– 3.875
Amber	3.375– 3.50	3.375– 3.50	3.375– 3.50
Red	3.125– 3.25	3.125– 3.25	3.125– 3.25

PETROLEUM COKE

****OKLAHOMA**

(Per ton in car lots)

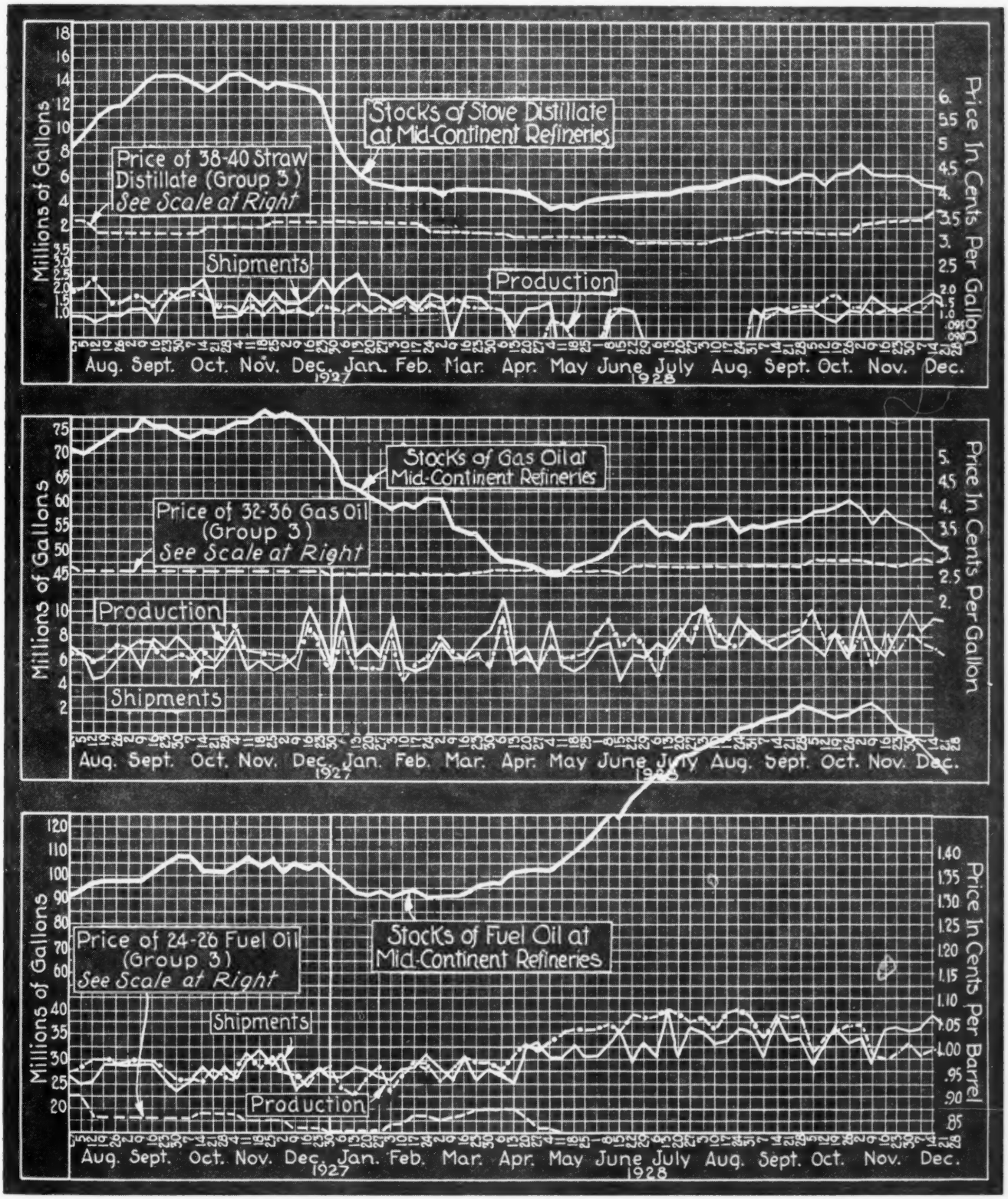
Lump	$4.50 – 5.00	$4.50 – 5.00	$4.50 – 5.00
Still run	$3.00	$3.00	$3.00
Breeze	$2.00	$2.00	$2.00

†Prices Nominal ††Only One Refiner Quoting *Quotations only **Represents Both Sales and Quotations

Barometer of Mid-Continent Refinery Market

Week Ending December 21

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 81 Plants to National Petroleum News


Millions of Gallons
Price In Cents Per Gallon
Stocks of Stove Distillate at Mid-Continent Refineries
Price of 38-40 Straw Distillate (Group 3) See Scale at Right
Shipments
Production
Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
1927
1928
Millions of Gallons
Price In Cents Per Gallon
Stocks of Gas Oil at Mid-Continent Refineries
Price of 32-36 Gas Oil (Group 3) See Scale at Right
Production
Shipments
Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
1927
1928
Millions of Gallons
Price In Cents Per Barrel
Price of 24-26 Fuel Oil (Group 3) See Scale at Right
Stocks of Fuel Oil at Mid-Continent Refineries
Shipments
Production
Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
1927
1928

Chicago Jobbers Pay No License Fees On Service Stations in 1929

By Ward K. Halbert
N. P. N. STAFF WRITER

CHICAGO, Dec. 21

MUNICIPALITIES that tax the oil industry by charging filling stations exorbitant annual license fees may now add Chicago to the list of cities shaken loose from this source of easy money. The question is not settled but the fight is on and the court has ordered that 1929 fees not be collected until final ruling is made.

Credit for the development in Chicago must be given to Paul Fligelman and Leonard Micon, operators of a filling station at 7602 South Ashland avenue. Besides running this oil station they have been the most active figures in organizing the Filling Station Owners Association of Cook county. They are the plaintiffs in the litigation on behalf of themselves and others so situated.

The case was placed in the hands of Micon & Micon, a law firm at 160 North La Salle street of which Samuel Micon (Leonard Micon's father) is senior partner. Attorney Micon handled the case personally and won the first tilt before Judge Harry M. Fisher in the circuit court of Cook county. The order has the effect of a temporary injunction but it is not exactly that. It developed in an unusual way.

When Attorney Micon appeared in court and presented his motion on behalf of Fligelman et al., asking for an order declaring the city license ordinance unconstitutional and an injunction to prevent city officials from trying to collect 1929 fees, the city's legal force was not prepared.

The bill of complaint had been on file for two weeks and the city notified but they had failed to file pleadings.

The court granted a little time but the case came up again on Dec. 17 and the city's council then sought an expression from the court as to the sufficiency of the complaint. Had the judge ruled the complaint insufficient the case would have been thrown out, but he saw it differently. Again he granted the city's request for time to plead but entered an order of continuance only upon promise from the city that no effort would be made to collect filling station licenses for 1929 before the cause is heard.

In short, the judge has blocked the collection of 1929 filling station license fees until the case is tried and decided. It represents about $200,000 to the city treasury and if the department of finance ever expects to get it they will have to build a fire under the city's legal staff, persuade it to stop "playing horse" with the circuit court and get the case tried on its merits. If it is tried on its merits they are likely to lose it. Attorney Micon says, "Whether lost or won in the circuit court it will go to the supreme court and there the oil men will win it."

In Chicago the license fees are not a flat $100 per filling station as they are in some towns. They are $50 per 1000-gallon tank. Most of the stations in Chicago have two tanks or more so the average undoubtedly is above $100 a year per station. It might run closer to $150 a year, but figured conservatively, $100 a year over an estimated 2000 stations is $200,000.

Before 1923 the Chicago license fee was $100 a year per 1000-gallon tank but that figure was cut 50 per cent through diplomatic negotiation by Automobile Associated Trades of Illinois, another organization in Chicago embracing oil station operators.

Attorney Micon says that his opposition to license fees charged by the city against service stations is based on a broad aspect of law. He believes that the Minnesota court was correct recently in throwing out the Minneapolis license ordinance because the fee was excessive. He says the justice of the peace in Blue Island, Ill., was right in his voiding a city ordinance there for the same reason. But that is only part of Mr. Micon's case.

"When the state legislature authorizes a municipality to make laws to license and govern certain businesses and lists the kinds of business to be so licensed, the city has no right to add other businesses to that list."

Mr. Micon says, "Filling stations are not on the list specifically subjected to city license by the state legislature, and the city has no right to collect anything at all from them as a license fee."

The contest of the oil industry against excessive license fees imposed by municipalities is getting interesting in Illinois. There has been one case in this state and one in Minnesota in which the oil men won their cases against municipalities in lower courts. Another Illinois case was won in the supreme court.

In a reasonably short time the oil industry may expect to have some substantial law built up on the subject. Here is a brief review of the four cases:

The Minnesota case was first. It was designated Crescent Oil Co., vs. City of Minneapolis. Attorney Paul Hadlick, secretary of the Minnesota Petroleum association, conducted the legal battle. Judge E. A. Montgomery of the Hennepin county district court issued a permanent injunction, early last October, against the enforcement of a city ordinance exacting a license fee of $100 a year per service station. The story was told on page 28 of the Oct. 24 issue of NATIONAL PETROLEUM NEWS.

The Blue Island case was like it. That Chicago suburb was licensing filling stations at $100 each per year without much trouble until Nels Johnson, private service station owner, refused to pay it. The town sued Mr. Johnson for the money and lost the case early last November. Mr. Johnson was defended in the suit by Lewis D. Ross, a Chicago lawyer. The decision was rendered by Millard A. Rauhoff, justice of the peace and city judge. The story appeared on page 26 of the Nov. 7 issue of NATIONAL PETROLEUM NEWS.

THE Mattoon case ended in a victory in the supreme court of Illinois. John Kizer, a Mattoon jobber, backed by other oil men and the Illinois Petroleum Marketers association, attacked a graduated license fee provided by city ordinance. The fight was on legal grounds and not against the unreasonableness of the fee. It was lost in the lower court and appealed by the oil men who after a year got a favorable decision. Justice Oscar E. Heard delivered the opinion on Oct. 25, 1928. The account appeared on page 121 of the Dec. 12 issue of NATIONAL PETROLEUM NEWS.

The gist of the supreme court's ruling was that Illinois once authorized its chartered municipalities to license oil plants but had not done so since July 1, 1919 when all powers to regulate the oil business were vested in the state department of trade and commerce.

Thus, Illinois towns that had oil station licensing ordinances before July 1, 1919 can keep them until they are thrown out on other grounds, but such city ordinances enacted since July 1, 1919 are void.

Mattoon's ordinance was passed after July 1, 1919 but Chicago's ordinance was passed before that date. Many license laws in Illinois towns died automatically with the issuance of the supreme court decision.

California Market

Export Prices Steady

LOS ANGELES, Dec. 22.—Major refiners in California are showing practically no disposition to shave their quotations on gasoline for export.

U. S. motor is 8 to 8.25 cents. It is rumored that there is one company with a large stock of this product that is willing to shave 8 cents slightly for East coast movement. This company sells most of its East coast goods through a large marketing company in New York City.

It became known this week that a contract calling for more than 1,000,000 barrels of U. S. Motor gasoline is being closed. These shipments will be made to the East coast over a period and so far no other details are known. Buyers seem to be of the opinion that the market will be more stabilized after the first of the year and apparently no one is anxious to close any contracts at this time.

There is practically no developments in the tank car movement of gasoline. This product is still available for out-of-state movement at 9 to 9.50 cents and several sellers are reported to be moving tank car gasoline within the state at 10 to 11 cents without tax.

Natural gasoline continues strong. Spot goods was moving at 8 to 8.50 cents. In export circles, sellers are demanding 9 cents for this product when mixed with 25 per cent or better U. S. Motor for shipment in tankers. Some of the sellers are asking 11 cents for this product delivered on the East coast. There are several buyers who would be willing to pay around 10 to 10.50 cents but most of them object to the 11 cents delivered price.

Fuel oil is moving freely. There has been no change in quotations. Tank car fuel is bringing 60 to 65 cents and an offer of 70 cents would bring forth a cargo of fuel for export.

Quotations on other products are unchanged.

Wax Market

'29 Refined Demand Good

NEW YORK, Dec. 22.—Export wax markets continued relatively inactive the past week, that is, as far as spot demand was concerned. The inquiry for shipment over the first three to six months of 1929 was good, but few sellers were willing to commit themselves this far ahead.

The inquiry for fully refined waxes on this basis was particularly good and in this section of the list there was considerable business closed. In fact some sellers reported they were sold up for January and February. The 125-127 A.m.p. grade was at a minimum of 5.875 cents a pound Saturday and offerings at this price were said to be small.

Sellers of white crude scale were reluctant to quote for anything but prompt delivery. The scale market was largely a bid and ask affair with buyers offering 5.10 to 5.15 cents for small lots and refiners quoting a minimum of 5.25 cents. Some business was taken by resale agents at the lower prices, but refiners were firm at 5.25.

Renewal of active buying from abroad is looked for with the turn of the new year.

Pennsylvania Market

Cylinder Stocks Higher

CLEVELAND, Dec. 24.—Cylinder stocks and bright stock quotations continued to rise in western Pennsylvania refinery market. The 600 steam refined stock today was quoted at 23 to 24 cents and light bright stock was 37 to 38 cents.

Export buying of bright stock continued heavy last week. Domestic buying has been good, some refiners reported, while others said the bulk of the activity was from export purchases.

Steam refined stocks continued scarce. Considerable shopping is still necessary to find spot market goods. One large refiner is sold up on all cylinder stocks until the middle of February. Another refiner last week sold 300,000 gallons of 600 steam refined for January delivery.

Neutrals continued fairly active. Quotations were unchanged. Fuel oils were active at unchanged prices.

Gasoline and kerosene were in fair demand last week with kerosene somewhat more active than gasoline. U. S. Motor gasoline was quoted at 10.25 to 10.50 cents today. More refiners were asking the lower figure today. Kerosene quotations generally were unchanged.

Cold Test Stocks More Active

HOUSTON, Dec. 22.—Manufacturers report better demand for zero cold test lubricants in the last half of the month as compared with the first part of December. Increased movements to the Great Lakes region for winter consumption are reported. Greatest demand is for the 200 viscosity grade. A number of export inquiries have been made in the last 10 days, but confirmation of sales is lacking.

LONG BEACH, Dec. 22.—R. L. Cunningham, geologist, formerly with the Pan American Petroleum Corp., and more recently with J. Orville Seeple, died at his home here, Dec. 6. Mr. Cunningham was about 54 years of age. He had been in poor health for several months.

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Oil Finance — Organization — Investment

624 South Michigan Avenue
Chicago, Illinois

Gulf Export Market

Market Quiet; Sales Small

Staff Special
NEW YORK, Dec. 22

THE bulk gasoline market at the Gulf was an uneventful affair during the last week. The business definitely known to have been closed consisted largely of small part cargoes at prices pretty much in line with those last paid.

Inquiries covering a total of approximately 135,000 barrels of U. S. Motor and 64-66, 375 end point, gasoline were circulated among the New York trade late in the week, but according to well informed observers of the market they were either withdrawn or postponed Saturday with the result that the trade had no full cargo sales prices to serve as definite indicators of the market trend.

The few signs of interest from the foreign trade came from France. The companies in the market this week have indicated off and on for the past month that they expected to be buyers in the near future.

It was generally agreed among the export trade, however, that if their inquiries materialized in sales, French tradition would be broken, for, as the saying goes in export circles, "the Frenchman never buys on a falling market."

There were some interesting developments in connection with the foregoing inquiries, however, which indicated to some extent that the bottom of the gasoline market at the Gulf has not yet been reached.

The inquiry of one buyer called for approximately 65,000 barrels of 64-66, 375 end point gasoline only, for Feb. 1-March 20 loading. A survey of the market Saturday disclosed the fact that U. S. suppliers had quoted prices ranging from 10.5625 cents up. This figure is 0.125-cent less than the last paid for 64-66.

Several suppliers were informed by their Paris offices Saturday, however, that the business had been taken by a French brokerage house on the basis of less than 10.50 cents f.o.b. the U. S. Gulf. The name of the company supplying was not made known. The trade in New York were inclined to discredit the verity of the reports. In some quarters the transaction was thought to have been a short sale.

The inquiry from a second French buyer called for approximately 65,000 barrels of U. S. Motor and 64-66, 375 end point gasoline for Feb. 10-March 10 loading. The inquiry was given exclusively to one New York broker who, Saturday reported he had been unable to get a firm offer from suppliers of less than 10.625 cents for the business. The buyer apparently decided to sit tight for a while longer, however, in view of the fact that he postponed closing until next week. Prices have gone off fully three-quarters of a cent since this buyer first indicated he was interested in a cargo.

In line with the lower prices quoted for 64-66, 375 end point gasoline, some suppliers reduced their prices for lower grades, with the exception of U. S. Motor. The 60-62, 400 end point gasoline was offered at 10.125 cents against 10.25 cents a week ago, and 61-63, 390 end point material was offered at 10.375 cents against 10.50 cents a week ago.

U. S. Motor was rather firm at 8.75 cents. Suppliers said if this price was shaded in the near future, it would more than likely be a case of using this grade as a selling medium for 64-66 in mixed cargoes.

A domestic buyer was seeking a full cargo of U. S. Motor this week. Up to close of business Saturday he had not obtained his requirements and the best price reported offered was 8.75 cents, which seemed to bear out the contentions of suppliers that this figure couldn't be shaded on full cargo lots.

Kerosene prices at the Gulf were fairly steady at 6.75 cents for prime white and 7.75 cents for water white. There was little activity reported in this section of the list.

Gas oil prices also were steady but demand from the European trade has been disappointing. Translucent gas oil of 26-30 gravity was quoted at a minimum of 3.75 cents at the Gulf with several suppliers asking 3.875 cents and also offering higher gravity goods at the same price.

Heavy oil prices were unchanged over last week.

New York Domestic Market

Reminiscences Make This Market

Staff Special
NEW YORK, Dec. 22

EASTERN gasoline markets were lacking in any particularly outstanding feature the past week. Spot prices continued to be of little concern to the trade, both buyers and sellers, with the bulk of goods moving under contract.

Developments outside of spot market activities, such as competition from other areas, the unhealthy condition of New York wholesale markets, 1929 contracts, and comparison of prices with a year ago occupied more of the trade's attention.

In reviewing prices over the past year refiners agreed that they had not fared so badly. The spot market for U. S. Motor gasoline now, even though it is pretty much of a figure head, is 3 cents higher than it was last year at this time. The price of U. S. Motor since the first of January has advanced 3.75 cents and to date has receded only 0.75-cent.

Spot markets at the present time of course aren't much of a guide to current conditions inasmuch as there is an extremely small volume of business being done on them. In most eastern territories jobbers have contracts which are giving them delivered costs considerably less than they would be, were they figured on the basis of spot quotations f.o.b. shipping points.

One of the less optimistic features of the market this week was the continuance of Mid-Continent gasoline working its way into the east in spite of some lowering of prices on the seaboard to meet the competition. Competition from Arkansas and Louisiana particularly has made pretty big dents in the sales of several sellers at southern seaboard points and goods from north and west Texas continued to enter western Pennsylvania in large volume.

One large seller in the Philadelphia district said he had received a few more orders from the Pittsburgh district since he had lowered his price for shipment there to 10.75 cents, f.o.b. Philadelphia, but against an average of approximately 300 cars of gasoline which he has shipped there every month this year, he had shipped but 40 cars so far in December.

Wholesale markets in the New York metropolitan district apparently are on another rampage. Tank wagon deliveries of gasoline were being made in some instances by small Independent companies as low as 11.50 cents a gallon. This compares with a minimum spot price of 10.75 cents quoted for U. S. Motor in New York harbor and a tank wagon price of 18 cents posted by the Standard Oil Co. of New York and the major Independents.

The lowering of quotations to 10.75 cents for U. S. Motor by several small sellers operating in New York harbor

was the most important change noted in spot markets along the Atlantic seaboard. The volume of business at these quotations of course was small, but with the abnormally thin movement on the spot market as a whole, sales at this figure about balanced those made at 11 cents and were considered representative of the general market.

One large company reduced its quotations for U. S. Motor at Norfolk and Charleston from 11.25 to 11 cents on Friday, but aside from this there were no changes in seaboard markets.

Kerosene was fairly active and prices were steady throughout the week. Water white was offered only in limited quantities at 9 cents a gallon. One seller in New York harbor quoted 8.75 cents for prime white.

Domestic burning oils were steady at unchanged prices. Contract movement was reported exceptionally heavy.

Sinclair Buys Stations From Bartles-Scott

CHICAGO, Dec. 22.—Sinclair Refining Co., New York, this week purchased 10 bulk stations in 10 Minnesota towns from the Bartles-Scott Oil Co. of Willmar. The consideration was not announced. Some of the bulk plants had service stations in the same towns which also were purchased.

C. L. Maguire, vice president of the Bartles-Scott company who operates the Northland Oil Co. of Chicago, said Bartles-Scott had retained all rights to brands and trade names and the privilege to market lubricating oils and greases through dealers in Minnesota but had withdrawn from a large part of western Minnesota, as far as gasoline and kerosene marketing is concerned.

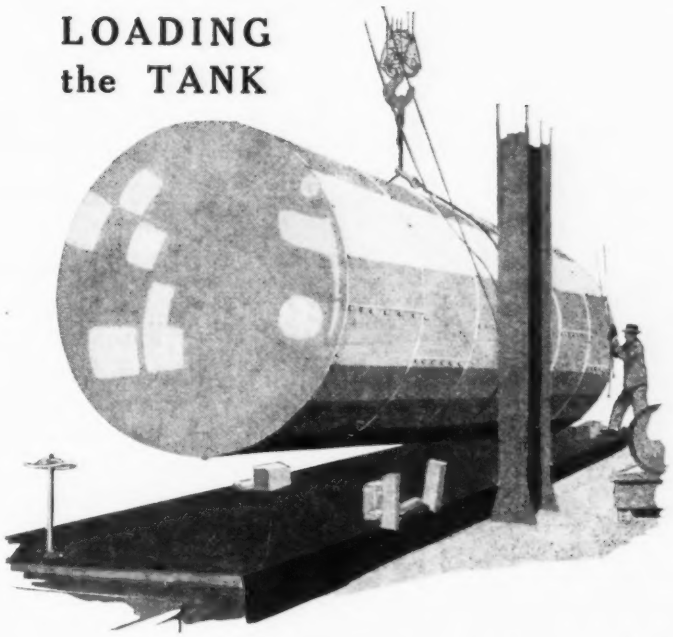
The properties sold represent about half of Bartles-Scott's distributing facilities, Mr. Maguire said. The company will continue as usual to operate its other properties and does not contemplate selling them. There will be further expansion, Mr. Maguire said, but it will be more concentrated. Operation of its newly acquired stations is directed from Sinclair's Minneapolis office.

D. W. Moffitt Improving

TULSA, Dec. 24.—D. W. Moffitt, vice president of the Mid-Continent Petroleum Corp., is improving rapidly after his serious illness. About a week ago he was able to leave the hospital at Chicago and return to his home in Tulsa. He expects to be back at his office shortly after the first of the year. Mr. Moffitt was taken suddenly ill shortly after he arrived at the Stevens hotel at Chicago at the time of the American Petroleum Institute meeting.

LOS ANGELES, Dec. 21.—Fullerton Oil Co. announces the removal of its Los Angeles offices to 1020 Security Building, 510 S. Spring St.

LOADING the TANK



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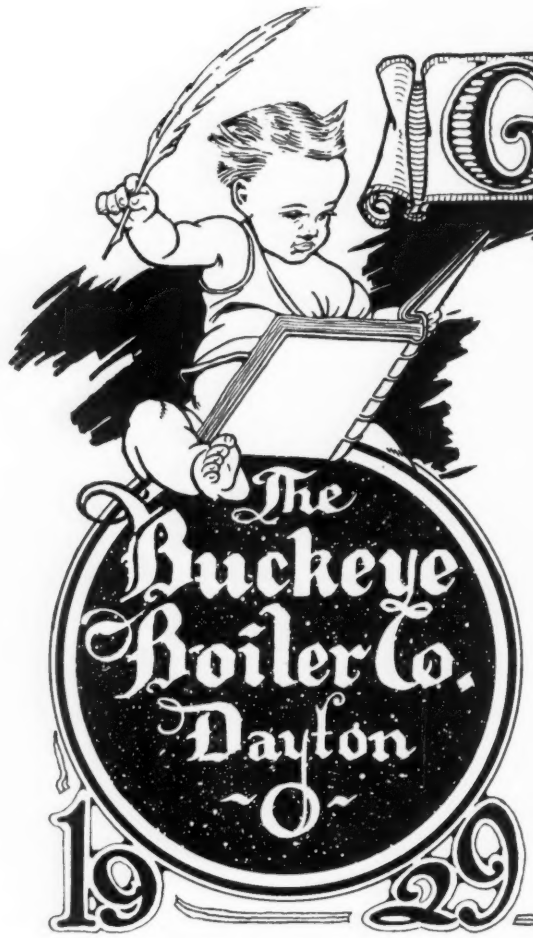

Greetings

WE, who have had the privilege of serving many friends in the petroleum industry, feel honored today to mark with you the attainment of another milestone in our history. It is also a pleasure at this time to express to you our sincere appreciation of past favors and our sincere best wishes for the future.

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Gasoline, Gas Oils, Petroleum Coke

FUEL OILS

LUBRICATING OILS

Cylinder, Engine, Cordage

RED AND PALE PARAFFINE OILS

Complete Seaboard Market

(Export markets for whole year given in OIL PRICE HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the whole year)

Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, representing majority of quotations.)

U. S. MOTOR GASOLINE	Dec. 24	Dec. 17	Dec. 10
New York harbor	10.75 –11.00	11.00	11.00
Portland district	*13.25	*13.25	*13.25
Boston district	*12.75	*12.75	*12.75
Providence district	*12.75	*12.75	*12.75
Philadelphia district	†11.00	†11.00	11.00
Baltimore district	11.00	11.00	11.00
Norfolk district	11.00	11.00 –11.25	11.00 –11.25
Charleston district	11.00	11.00 –11.25	11.00 –11.25
Savannah district	11.00	11.00	11.00
Jacksonville district	11.00	11.00	11.00
CALIFORNIA U. S. MOTOR GASOLINE			
New York harbor	11.00	11.00	11.00
Philadelphia district	†11.00	†11.00	11.00
Baltimore district	11.00	11.00	11.00
WATER WHITE KEROSENE			
New York harbor	9.00	9.00	9.00
Philadelphia district	9.00	9.00	9.00
Baltimore district	9.00	9.00	9.00
GAS OIL: 28-34 Gravity			
New York harbor	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00
Boston district	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00
FURNACE OIL: 36-40 Gravity			
New York harbor	6.50	6.50	6.50
Boston district	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
GRADE C BUNKER OIL			
New York harbor	$1.05	$1.05	$1.05
Boston district	$1.05	$1.05	$1.05
DIESEL OIL			
New York harbor	$2.00	$2.00	$2.00
MEDICINAL OILS, RUSSIAN			
885-890 s.g., 325-330 vis.	$0.80 – 0.90	$0.80 – 0.90	$0.80 – 0.90
870-875 s.g., 150-155 vis.	$0.67 – 0.77	$0.67 – 0.77	$0.67 – 0.77
860-865 s.g., 80-85 vis.	$0.65 – 0.75	$0.65 – 0.75	$0.65 – 0.75

Note: Above gasoline prices do not include inspection tax levied in some states.

*Minimum delivered.

†Two sellers quote 10.75c for shipment to Pittsburgh and other Western Pennsylvania points.

New York Export Market

(Gasoline and kerosene in cases in bulk. Lubricating oils are per gal. in bbls. Cylinder oils are Penna. products)

	Dec. 24	Dec. 17	Dec. 10
U. S. Motor gasoline	26.40	26.40	26.40
43-45 150 w.w. kerosene	18.90	18.90	18.90
42-44 110 s.w. kerosene	17.65	17.65	17.65
CYLINDER OILS			
Bright stock, dark	42.50 –44.00	41.50 –43.00	41.50 –42.50
600 D filtered	38.00	33.50 –35.00	33.50 –35.00
600 Warren E filtered	33.00 –35.00	29.00 –31.50	29.00 –31.50
600 s.r. unfiltered	28.00 –31.00	28.50 –29.50	26.50 –27.50
650 s.r. unfiltered	33.00 –35.00	32.50 –33.00	29.50 –32.00
600 flash, s.r.	36.00 –38.00	36.00	33.00 –34.50
630 flash, s.r.	47.00 –48.00	45.00 –47.00	40.00 –43.50
RED ENGINE OILS (Vis. 100°)			
300 vis. No. 6½ color	20.00	20.00	20.00
250 vis. No. 6 color	19.50	19.50	19.50
200 vis. No. 6 color	18.00	18.00	18.00
PALE ENGINE OILS (Vis. 100°)			
230 vis. No. 3¾ color	23.50	23.50	23.50
180 vis. No. 3¼ color	19.00	19.00	19.00
100 vis. No. 2¼ color	16.00	16.00	16.00
MOTOR OILS (Vis. 100°)			
600 vis. No. 7 color	33.00	33.00	33.00
500 vis. No. 6½ color	31.00	31.00	31.00
400 vis. No. 7¼ color	30.00	30.00	30.00
300 vis. No. 6 color	29.00	29.00	29.00
200 vis. No. 6 color	28.00	28.00	28.00

*This price is for 200 No. 3¼ color.

MEDICINAL OILS			
875-885 s.g.	$0.80	$0.80	$0.80
865-870 s.g.	$0.70	$0.70	$0.70
WAXES (In cents per pound, f.a.s. carload lots)			
WHITE CRUDE SCALE (In barrels)			
122-124 A.m.p.	5.25	5.25	5.125– 5.25
124-126 A.m.p.	5.25	5.25	5.125– 5.25
FULLY REFINED (In burlap bags)			
123-125 A.m.p. Phila	5.75	5.75	5.75
125-127 A.m.p.	5.875– 6.00	5.875– 6.00	5.75
128-130 A.m.p.	6.25 – 6.375	6.25 – 6.50	6.00 – 6.25
130-132 A.m.p.	6.50 – 6.75	6.50 – 6.75	6.50
133-135 A.m.p.	7.25	7.25	7.25
135-137 A.m.p.	7.75	7.75	7.75
YELLOW CRUDE SCALE			
124-126 A.m.p.	5.00 – 5.125	5.00 – 5.125	5.00 – 5.125

Gulf Export Market

(Prices are f. o. b. Gulf oil terminals in Texas and Louisiana, shipments of 20,000 bbls. and over unless otherwise noted, representing sellers' opinions, except those prices specified to the contrary)

GASOLINE	Dec. 24	Dec. 17	Dec. 10
U. S. Motor	8.75	8.75	9.00 –' 9.125
60-62 400 e.p.	10.125–10.25	10.25	10.50
61-63, 390 e.p.	10.375–10.50	10.50	10.75
64-66, 375 e.p.	10.625–10.75	10.75	11.00
U. S. Motor, cases (cargoes)	$1.80	$1.80	$1.85
64-66, cases (cargoes)	$1.95	$1.95	$2.00
KEROSENE			
44 water white	7.75	7.75	7.75
41-43 prime white	6.75	6.75	6.75
Water white, cases (cargoes)	$1.65	$1.65	$1.65
Prime white, cases (cargoes)	$1.55	$1.55	$1.55
DOMESTIC GAS & BUNKER OILS			
*26-30 translucent gas oil	3.75 – 3.875	3.75 – 3.875	3.75 – 3.875
*30-32 translucent gas oil	3.875	3.875	3.875
Grade C bunker oil	$0.875–$0.95	$0.875–$0.95	$0.95
Grade C bunker oil, cargoes	$0.65 –$0.70	$0.65 –$0.70	$0.67 –$0.70

*Less than ½ of 1% sulfur.

MEXICAN CRUDE AND BUNKER OILS (F. O. B. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid	$0.88 –$0.95	$0.88 –$0.95	$0.90 –$0.95
Grade C bunker oil, for bunkering purposes, taxes paid	$1.05	$1.05	$1.05
SOUTH TEXAS LUBRICATING OILS (Viscosity at 100°F.: cold test 0) (Tanker, f.o.b. Houston)			
100 vis. No. 2 unfiltered pale	6.50	6.25 – 6.375	6.25 – 6.375
200 vis. No. 3 unfiltered pale	8.50 – 9.50	8.50 – 9.50	8.50 – 9.50
300 vis. No. 3 unfiltered pale	9.25 –10.50	9.25 –10.50	9.25 –10.50
500 vis. No. 3½ unfiltered pale	11.00 –12.00	11.00 –12.00	10.75 –12.00
750 vis. No. 4 unfiltered pale	12.50 –13.25	12.50 –13.00	12.50 –13.00
1200 vis. No. 5 unfiltered pale	16.00 –17.00	16.00 –17.00	15.50 –17.00
200 vis. No. 5-6 red oil	7.50 – 8.50	7.50 – 8.50	7.00 – 8.50
300 vis. No. 5-6 red oil	8.75 – 9.25	8.75 – 9.25	8.00 – 9.25
500 vis. No. 5-6 red oil	10.00 –10.50	10.00 –10.50	9.75 –10.50
750 vis. No. 5-6 red oil	11.50 –12.00	11.50 –12.00	11.25 –12.00
1200 vis. No. 5-6 red oil	15.00 –16.50	15.00 –16.50	14.50 –16.50

Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	Dec. 24	Dec. 17	Dec. 10
Gasoline, U. S. Motor, 53-55 Gravity	8.00 – 8.25	8.00 – 8.25	8.00 – 8.25
Gasoline, U. S. Motor, blends and special cuts	8.50 –10.25	8.50 –10.25	8.50 –10.25
Gas Oil, 30-34, per barrel	$1.05 –$1.15	$1.05 –$1.15	$1.05 –$1.15
Diesel Oil, 27 plus, per barrel	$0.95 –$1.10	$0.95 –$1.10	$0.95 –$1.10
Bunker oil, 14-18, per barrel	$0.70 –$1.00	$0.70 –$1.00	$0.70 –$1.00
Fuel oil, 14-18 per barrel	$0.70 –$1.00	$0.70 –$1.00	$0.70 –$1.00
Kerosene, 38-40 w.w., 125-150 flash, per gal.	5.50 – 6.25	5.50 – 6.25	5.25 – 6.00
Cased Goods			
Gasoline, U. S. Motor	$1.75 –$1.85	$1.75 –$1.85	$1.75 –$1.85
Kerosene, 38-40 w.w., 125-150 flash	$1.45 –$1.50	$1.45 –$1.50	$1.45 –$1.50

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 pounds, British sterling; to American ports, cents per barrels)

	Dec. 24	
	Crude &/or Fuel	Refined Oil
Calif. to U. K. or Continental ports*	23	22–23
Gulf to U. K. or Continental ports*	13	12–13
North Atlantic to U. K. or Continental ports*	11/6	11
Calif. to North Atlantic ports (not E. of N. Y.)	50-55c	65c
Gulf and North Atlantic ports (not E. of N. Y.)**	16	20–25c

*Continental ports in the range between Bordeaux and Hamburg, both inclusive.

**For Venezuela loading 1c per bbl. additional. For Tampico loading 4c per bbl. additional.

Tank Wagon, Service Station Markets for Gasoline and Kerosene

(OIL PRICE HANDBOOK has t. w. and s. s. markets for the whole year, arranged for quick reference)

These Prices in Effect December 24, 1928, as Posted by Principal Marketing Companies

S.O. NEW JERSEY TERRITORY

	Gasoline T.W.	Gasoline Tax	Gasoline Total T.W.	Gasoline Total S.S.	Oil T.W.
Atlantic City, N. J.	15	2	17	20	13
Newark, N. J.	15	2	17	20	13
Annapolis, Md.	15	4	19	22	13
Baltimore, Md.	15	4	19	22	13
Cumberland, Md.	15	4	19	22	13
Washington, D. C.	15	2	17	20	13
Danville, Va.	15	5	20	23	13
Norfolk, Va.	15	5	20	23	13
Richmond, Va.	15	5	20	23	13
Roanoke, Va.	15	5	20	23	13
Petersburg, Va.	15	5	20	23	13
Charleston, W. Va.	15	4	19	22	13
Keyser, W. Va.	15	4	19	22	13
Parkersburg, W. Va.	15	4	19	22	13
Wheeling, W. Va.	15	4	19	22	13
Charlotte, N. C.	15	4	19	22	13
Hickory, N. C.	15	4	19	22	13
Mt. Airy, N. C.	15	4	19	22	13
Salisbury, N. C.	15	4	19	22	13
Charleston, S. C.	15	5	20	23	13
Columbia S. C.	15	5	20	23	13

CONTINENTAL OIL

Denver, Colo.	14	3	17	20	14.5
Pueblo, Colo.	16	3	19	22	14.5
Grand Junc., Colo.	19.5	3	22.5	25.5	18
Casper, Wyo.	16	3	19	22	13
Cheyenne, Wyo.	17	3	20	23	14.5
Butte, Mont.	20.5	3	23.5	26.5	19
Helena, Mont.	20.5	3	23.5	26.5	19
Salt Lake City, Utah	18.5	3½	22	25	17
Boise, Ida.	20.5	4	24.5	27.5	19
Twin Falls, Ida.	20.5	4	24.5	27.5	19
Albuquerque, N. M.	17	5	22	25	17

S. O. CALIFORNIA

Phoenix, Ariz.	12	4	16	20	21.5
Los Angeles, Cal.	13.5	3	16.5	20.5	15.5
Fresno, Cal.	14	3	17	21	16.5
San Francisco, Cal.	14	3	17	21	15.5
Reno, Nev.	18	4	22	26	19
Portland, Ore.	14.5	3	17.5	21.5	16.5
Seattle, Wash.	14.5	2	16.5	20.5	16.5
Spokane, Wash.	18.5	2	20.5	24.5	20.5
Tacoma, Wash.	14.5	2	16.5	20.5	16.5

S. O. LOUISIANA

Little Rock, Ark.	13	5	18	22	14
Alexandria, La.	13	2	15	18	†16
Baton Rouge, La.	12	2	14	17	†14.5
Lake Charles, La.	13.5	2	15.5	18.5	†16
New Orleans, La.	*13.5	2	*15.5	*18.5	†16
Shreveport, La.	13.5	2	15.5	18.5	†15
Lafayette, La.	13	2	15	18	†15.5
Bristol, Tenn.	16	3	19	22	15
Chattanooga, Tenn.	15.5	3	18.5	21.5	16
Knoxville, Tenn.	16	3	19	22	16
Nashville, Tenn.	15	3	18	21	16
Memphis, Tenn.	14	3	17	20	15

*New Orleans gasoline prices include 1c parish tax in addition to 2c state tax, and kerosene prices include 1c state tax and 1c parish tax.

†Kerosene price in Louisiana includes 1c state tax

S. O. KENTUCKY

Ashland, Ky.	17	5	22	24	15.5
Catlettsburg, Ky.	17	5	22	24	15.5
Lexington, Ky.	16	5	21	22	15.5
Louisville, Ky.	16	5	21	23	15
Covington, Ky.	17	5	22	22	15.5
Clarksdale, Miss.	18	4	22	24	13
Gulfport, Miss.††	19.5	4	23.5	25.5	14
Jackson, Miss.	16	4	20	22	14.5
Natchez, Miss.	17.5	4	21.5	23.5	14
Vicksburg, Miss.	17.5	4	21.5	23.5	14
Birmingham, Ala.	18	4	22	24	16
Mobile, Ala.‡	18	4	22	24	15
Montgomery, Ala.*	16	4	20	21	16.5
Atlanta, Ga.	18	4	22	24	†16.5
Augusta, Ga.	18	4	22	24	†15.5
Macon, Ga.	18	4	22	22	†16.5
Savannah, Ga.	17	4	21	23	†15.5
Jacksonville, Fla.	18	5	23	25	14.5
Miami, Fla.	19	5	24	26	15.5
Tampa, Fla.	18	5	23	25	14.5
Pensacola, Fla.**	19	5	24	26	14.5

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included. ‡Mobile gasoline prices include 1c city tax.

†Georgia kerosene prices include 1c state tax.

**Both tank wagon prices include 1c city tax at Pensacola, which went into effect Oct. 15, 1926.

††Both tank wagon prices at Gulfport include Harrison county privilege tax of 2c.

Latest Changes In Tank Wagon Prices

Gasoline Changes

S. O. Louisiana—T.w. and s.s. price gasoline up 2c, New Orleans, **Dec. 17.**

Kerosene Changes

S. O. New Jersey—Kerosene price 13c established throughout territory **Dec. 24.** One cent reduction all points except Baltimore which was advanced 1c.

Atlantic Refining—Kerosene prices cut Pennsylvania and Delaware 1c, **Dec. 24.**

S. O. NEBRASKA

	Gasoline T.W.	Gasoline Tax	Gasoline Total T.W.	Gasoline Total S.S.	Oil T.W.
Omaha, Neb.	15.25	2	17.25	19.25	12.25
McCook	16.75	2	18.75	20.75	13.75
Norfolk	15.75	2	17.75	19.75	12.75
North Platte	16.75	2	18.75	20.50	13.50
Scottsbluff	16.75	2	18.75	20.75	13.25

S. O. INDIANA

Chicago, Ill.	15	0	15	16	12
Decatur, Ill.	15.2	0	15.2	15	12.1
E. St. Louis, Ill.	14.4	0	14.4	16.4	11.2
Joliet, Ill.	15.4	0	15.4	17.4	12.3
Peoria, Ill.	15.2	0	15.2	14	12.1
Quincy, Ill.	15.2	0	15.2	17.2	11.9
Indianapolis, Ind.	15.2	3	18.2	18.2	13.2
Evansville, Ind.	15	3	18	20	13
South Bend, Ind.	15.4	3	18.4	20.4	13.4
Detroit, Mich.	15.8	3	18.8	20.8	13.7
Grand Rapids, Mich.	15.7	3	18.7	20.7	13.6
Saginaw, Mich.	15.9	3	18.9	20.9	13.8
Green Bay, Wis.	15.6	2	17.6	19.6	12.4
Madison, Wis.	15.3	2	17.3	17.3	12.1
Milwaukee, Wis.	15.1	2	17.1	19.1	11.9
La Cross, Wis.	16.2	2	18.2	20.2	13
Minneapolis, Minn.	16.2	2	18.2	20.2	12.9
Duluth, Minn.	16.5	2	18.5	20.5	12.9
Mankato, Minn.	16.1	2	18.1	20.1	12.7
Des Moines, Ia.	15.5	3	18.5	18.5	12.3
Davenport, Ia.	15.5	3	18.5	20.5	12.3
Sioux City, Ia.	15.1	3	18.1	20.1	11.9
Mason City, Ia.	15.5	3	18.5	20.5	12.3
St. Louis, Mo.	*14.9	2	16.9	16.9	11.3
Kansas City, Mo.	†15.9	2	17.9	17.9	10.6
St. Joseph, Mo.	†15.5	2	17.5	17.5	11.2
Fargo, N. D.	17.9	2	19.9	21.9	14.9
Grand Forks, N. D.	18.2	2	20.2	22.2	15.2
Minot, N. D.	17.9	2	19.9	21.9	14.9
Pierre, S. D.	16	4	20	22	13.4
Huron, S. D.	16.3	4	20.3	22.3	13.7
Wichita Kans.	13.8	2	15.8	17.8	10.8
Bartlesville, Okla.	13.5	3	16.5	18.5	10.5

S. O. Indiana's quantity contract price schedule on tank truck deliveries of gasoline, figured from the service station price, is 2c for 500 gals. or more a month; 2½c for 2000 gals. or more a month and 3c for 6000 gals. or more a month.

*Includes city tax of ½c.

†Includes city tax of 1c.

S. O. OHIO

	Gasoline T.W.	Gasoline Tax	Gasoline Total T.W.	Gasoline Total S.S.	Oil T.W.
All Ohio points	*16	3	*19	20	12

*S. O. Ohio recognizes a maximum discount to dealers of 3c per gal. under its service station price of gasoline. Government agencies and public utility users are allowed 2c off the service station price.

MAGNOLIA PETROLEUM

Muskogee, Okla.	15	3	18	20	12
Oklahoma City	15	3	18	20	12
Tulsa, Okla.	14	3	17	19	10
Fort Smith, Ark.*	15	†3	18	20	14
Little Rock, Ark.	16	5	21	23	14
Texarkana, Ark.*	14.5	*2	16.5	20.5	13
Dallas, Tex.	14	2	16	20	12
Fort Worth, Tex.	14	2	16	19	12
Houston, Tex.	14	2	16	20	15
San Antonio, Tex.	12	2	14	17	11
El Paso, Tex.	15	2	17	20	16

*Within city of Texarkana, the state tax on gasoline is 2c per gal. conforming with the Texas state tax. In this district outside of the city the 5c Arkansas tax applies.

†Within city of Fort Smith, Oklahoma tax of 3c applies. In this district outside of the city, the 5c Arkansas tax applies.

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, acutal prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

New York City	18	0	18	*20	15
Albany, N. Y.	18	0	18	21	15
Buffalo, N. Y.	18	0	18	20	14
Rochester, N. Y.	18	0	18	20	13
Syracuse, N. Y.	18	0	18	20	13
Boston, Mass.	17	0	17	18	15
Augusta, Me.	17	4	21	22	15
Manchester, N. H.	17	4	21	22	15
Burlington, Vt.	17	3	20	21	15

*The Standard of New York does not operate stations in New York City. This figure is the retail price of a principal station operator in New York, selling Socony gasoline.

ATLANTIC REFINING

Pittsburgh, Pa.	†16	*	†16	*20	14
Philadelphia, Pa.	†16	*	†16	*20	14
Allentown, Pa.	†16	*	†16	*20	14
Erie, Pa.	†16	*	†16	*20	14
Scranton, Pa.	†16	*	†16	*20	14
Altoona, Pa.	†16	*	†16	*20	14
Dover, Del.	†16	3	†19	20	14
Wilmington, Del.	†16	3	†19	20	14
Boston, Mass.	17	0	17	18	15
Springfield, Mass.	17	0	17	18	15
Worcester, Mass.	17	0	17	18	15
Providence, R. I.	17	2	19	20	15
Hartford, Conn.	17	2	19	20	14
New Haven, Conn.	17	2	19	20	15

*3-cent state tax is collected by retail dealer and paid by him directly to state.

†The Atlantic Refg. Co. recognizes a 2c a gal. discount from its posted tank wagon market for dealers for resale.

For commercial accounts under definite contract for a year's supply, the company recognizes a discount of 1c below t.w. market where contract calls for between 5,000 and 10,000 gals. a year, and 2c where contract calls for deliveries above 10,000 gals., where deliveries on the account are by tank wagon.

For such commercial accounts taking deliveries from service stations, the same discounts apply but are figured from the posted service station price.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Spirits	V.M.&P. Naphtha	Cleaner Naphtha
Chicago	14.7	16.2	18
Detroit	16.4	17.9	19.7
Kansas City	†14.9	†16.4	†18.2
Milwaukee	15.4	*18.9	*20.7
Minneapolis	*18.7	*20.2	*22
St. Louis	14.6	16.1	17.9
New York		20	

*Includes 2c state tax. †Includes 1c city tax.

Above prices include these inspection fees on both gasoline and kerosene, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosene; Arkansas, 1/20c on both; Colorado, 1/10c on both; Florida, 1/8c on both; Indiana, 2/25c on both; Kansas, 1/50c on both; Louisiana, 1/32c on gasoline, 1c on kerosene; Minnesota, 3/50c on both; Missouri, 1/50c on both; Nebraska, 3/50c to 1/2c on both; North Carolina, 1/4c on both; North Dakota, 1/20c on both; Oklahoma, 4/25c on both; South Carolina, 1/8c on both; South Dakota, 1/10c on both; Tennessee, 2/5c on gasoline and 1/2c on kerosene; Wisconsin, 3/50c on both.

Kerosene inspection fees only: Iowa, 13/100c; Michigan, 1/5c to 4/5c per gal.

In Illinois, cities and villages have the power to appoint oil inspectors and fix inspection fees which is done in some instances. In some cases in the above states or other states there are local inspection fees.

Tank Wagon, Service Station Markets for Gasoline and Kerosene

CANADA

Prices in Effect December 24, 1928

(Per Imperial Gallon, which is 1.2 American Gallons)

	Gasoline T.W.	Tax	T.W.	S.S.	Oil T.W.
ONTARIO					
Toronto	20.5	3	23.5	27	22
Ottawa	20.5	3	23.5	27	22
Cochrane	25.5	3	28.5	..	27
Ft. William	23.5	3	26.5	30	23.5
MANITOBA					
Winnipeg	22.5	3	25.5	29	22.5
SASKATCHEWAN					
Regina	27	3	30	34	27
ALBERTA					
Edmonton	27.5	3	30.5	34	27.5
Calgary	23.5	3	26.5	30	23.5
BRITISH COLUMBIA					
Vancouver	22	3	25	29	23
QUEBEC					
Montreal	21.5	5	26.5	30	22
Quebec City	22.5	5	27.5	31	23
Three Rivers	22.5	5	27.5	31	23
NEW BRUNSWICK					
St. John	25	3	28	31.5	25
Moncton	25	3	28	31.5	25
NOVA SCOTIA					
Halifax	25	5	30	33.5	25
Sydney	25	5	30	33.5	25
PRINCE EDWARD ISLAND					
Charlottetown	25	5	30	33.5	25

Note: In districts surrounding these points 1c additional is added to city price.

Parley Called on Furnace Oil Standardization

CLEVELAND, Dec. 22.—The U. S. Bureau of Standards has called a conference on the standardization of furnace and fuel oils to be held at 10 a. m. Jan. 9 in the Pennsylvania hotel, New York. The recommended standards are those on which a committee from the American Oil Burner Association and the American Petroleum Institute have been working. The specifications were published in the Sept. 5, 1928, issue of NATIONAL PETROLEUM NEWS, page 94.

It is expected that many of the large manufacturers will have representatives at the conference.

The specifications of the six recommended grades will be presented to the conference by Harry F. Tapp, technologist of the oil burner association. Whether the recommendations if adopted as standard for this country shall be adopted in the export trade, will also be considered.

DENVER—J. L. Walsh, who for years has been living in Kansas City, has recently moved his office to the Foster Bldg., Denver, with the Home Refining & Supply Co.

A New Year for Oil Measurement too!

1929 and the years to come will show more profit per unit of sale if you install Niagara Oil Meters.

A Niagara accurately measures and automatically records your purchases or sales. A Niagara prevents loss from over measure, theft, favoritism and forgetfulness.

Inventories, cash, accounts receivable must check closely with the daily meter readings or your employees are immediately accountable for the discrepancies.

Because of the accurate measuring and recording, you sell and make a profit on gasoline and oil that would be an absolute loss without a meter. The profit on these sales will in a year's time more than pay the purchase and installation cost of a Niagara.

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Without cost or obligation on our part:

☐ Please send us a copy of your Niagara Oil Meter Booklet.

☐ Please show us how Niagara Oil Meters can be adapted to the measuring of:

Name.....

Type of Business.....

Address.....

Crude Oil Prices (in Effect Dec. 24)

(Crude prices for the whole year in OIL PRICE HANDBOOK published annually)

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Penna. Grade Oil in New York Transit Lines (Alleghany, N. Y. District)	$3.85
Bradford District Oil in National Transit Lines (Bradford District)	3.85
Penna. Grade Oil in National Transit Lines (Other Pennsylvania)	3.75
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania)	3.75
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)	3.65
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district)	3.60
Cabell Grade in Eureka Pipe Lines (West Virginia)	1.45
Corning Grade in Buckeye Pipe Lines (Ohio)	1.90
Corning, O., heavy grade	1.80
Somerset Oil in Cumberland Pipe Lines (Kentucky)	1.75
Ragland Grade in Cumberland Pipe Lines (Kentucky)	.95

(Posted by Stoll Oil Refining Co.)

Oil City, Ky., oil in Stoll lines	$1.75

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Effective July 27, 1928

Wooster (Oct. 17)	*$1.77	Princeton	$1.55
Lima	1.60	Illinois	1.55
Waterloo	1.20	Plymouth	1.28
Indiana	1.37	West Kentucky	1.63

*Wooster crude run prior to Oct. 17, 1928 takes price of $1.67.

CANADIAN CRUDE

Posted by Imperial Oil Refineries, Ltd.

Petrolia	$2.00
Oil Springs	2.07

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of Prairie Oil & Gas Co.

(In Oklahoma, Kansas, North and East Central Texas)

Effective July 26, 1928

Below 25	$0.60	35-35.9	$1.31
25-25.9	0.67	36-36.9	1.36
26-26.9	0.74	37-37.9	1.41
27-27.9	0.81	38-38.9	1.46
28-28.9	0.88	39-39.9	1.51
29-29.9	0.95	40-40.9	1.56
30-30.9	1.02	41-41.9	1.61
31-31.9	1.09	42-42.9	1.66
32-32.9	1.16	43-43.9	1.71
33-33.9	1.21	44 and above	1.76
34-34.9	1.26		

Humble Oil & Refining Co. Prices

(Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes all in Texas.)

July 26, same schedule as Prairie.

Mirando, Tex	$1.00

Magnolia Petroleum Co.

(In Oklahoma, Kansas and North and East Central Texas)

July 26, Magnolia posted in above fields and in Panola Co., same schedule as Prairie, except these grades posted Aug. 2

Below 25	$0.60	27-29.9	$0.75
25-25.9	0.67	30-30.9	0.90
26-26.9	0.74	31-31.9	1.05

Glasscock, Crane, Upton, Winkler Counties	0.65
Chalkfield (Howard Co.)	0.80
Iatan district	0.93
Corsicana heavy	1.00

Carter Oil Co.

(Oklahoma and Kansas)

July 26, same schedule as Prairie except Carter does not post oil below 25.

PANHANDLE, TEXAS

Humble Oil & Refining Co.

Effective July 26, 1928

Hutchinson and Carson Counties:

Below 32	$0.69	38-38.9	$1.06
32-32.9	0.76	39-39.9	1.11
33-33.9	0.81	40-40.9	1.16
34-34.9	0.86	41-41.9	1.21
35-35.9	0.91	42-42.9	1.26
36-36.9	0.96	43-43.9	1.31
37-37.9	1.01	44 and above	1.36

Wheeler County:

Below 30	$0.65	37-37.9	$1.11
30-30.9	0.72	38-38.9	1.16
31-31.9	0.79	39-39.9	1.21
32-32.9	0.86	40-40.9	1.26
33-33.9	0.91	41-41.9	1.31
34-34.9	0.96	42-42.9	1.36
35-35.9	1.01	43-43.9	1.41
36-36.9	1.06	44 and above	1.46

Gray County:

Below 29	$0.68	37-37.9	$1.21
29-29.9	0.75	38-38.9	1.26
30-30.9	0.82	39-39.9	1.31
31-31.9	0.89	40-40.9	1.36
32-32.9	0.96	41-41.9	1.41
33-33.9	1.01	42-42.9	1.46
34-34.9	1.06	43-43.9	1.51
35-35.9	1.11	44 and above	1.56
36-36.9	1.16		

WEST TEXAS

Humble Oil & Refining Co.

Effective July 26, 1928

Winkler, Crane, Upton, Crockett, and Pecos Counties	$0.65

NORTH LOUISIANA—ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana

Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton, De Soto and **Cotton Valley.

Effective Aug. 2, 1928

Below 28	$0.81	36-36.9	$1.36
28-28.9	0.88	37-37.9	1.41
29-29.9	0.95	38-38.9	1.46
30-30.9	1.02	39-39.9	1.51
31-31.9	1.09	40-40.9	1.56
32-32.9	1.16	41-41.9	1.61
33-33.9	1.21	42-42.9	1.66
34-34.9	1.26	43-43.9	1.71
35-35.9	1.31	44 and above	1.76

**Cotton Valley, below 36, $0.75. Beginning with 36-36.9, same schedule as above.

Smackover, below 24	$0.75
do 24 and above	.90
Bellevue	1.25
*Urania, La	.90
†East El Dorado	0.75

*Posted by Louisiana Oil Refining Corp.

†Posted by Magnolia Petroleum Co.

Smackover prices posted on Feb. 7 by S. O. La., Gulf, Shreveport-El Dorado Pipe Line, Atlantic Oil Producing Co. and The Texas Co.; on Feb. 8 by Magnolia; on Feb. 6 by La. Oil Refg. Corp.

Aug. 8 The Texas Co., same schedule in Louisiana as Standard, plus these grades: 24-24.9, $0.60; 25-25.9, $0.67; 26-26.9, $0.74; 27-27.9, $0.81.

Aug. 7 Magnolia Petroleum met Standard schedule in Louisiana-Arkansas fields.

STEPHENS, ARKANSAS

Louisiana Oil Refining Corp., and Atlantic Oil Producing Co.

Effective Aug. 2, 1928

Below 28	$0.75	30-30.9	$0.87
28-28.9	0.79	31-31.9	0.91
29-29.9	0.84	32 and above	0.95

GULF COASTAL

Posted by Humble Oil & Refining Co.

Effective March 14, 1927

Grades A	$1.20	29-29.9	$1.25
Grades B:		30-30.9	1.27
Below 25	1.15	31-31.9	1.29
25-25.9	1.17	32-32.9	1.31
26-26.9	1.19	33-33.9	1.33
27-27.9	1.21	34-34.9	1.35
28-28.9	1.23	35 and above	1.37

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia, Orange, Boling, Pierce Junction, Sugarland and Raccoon Bend. All other fields are Grades A only

Pennsylvania Clubs Hear About Merchandising

HARRISBURG, Dec. 21.—Following his plan to cover the state with local petroleum clubs and having a speaker to address each of these clubs monthly, R. A. Overholser, executive secretary of the Pennsylvania Independent Oil Men's Association, announced in its Dec. 4 "bulletin" that H. W. White, Vacuum Oil Co., New York, was the speaker appearing before the clubs in the western half of the state and C. F. Fretz in the eastern half this month. Both speakers delivered the same address on merchandising.

These clubs meet in December with either one of the above speakers to address them depending upon which half of the state they are in:

Oil Field Petroleum Club, Dec. 19, Southeastern Petroleum Club, Dec. 17, Central Petroleum Club, Williamsport, Dec. 12, West Central Petroleum Club, Dec. 3, Lewistown; Tri-County Petroleum Club, Dec. 4, Blairsville; Southwestern Petroleum Club, Dec. 5, McKeesport; Western Petroleum Club, Dec. 6, Beaver Falls; Col. Drake Petroleum Club, Dec. 7, Brookville; South Central Petroleum Club, Dec. 10, Gettysburg, and Anthracite Petroleum Club, Dec. 11, Tamaqua Heights.

Exports From Tampico District

Company	October	November
Transcontinental-Rayon Cos. (Standard of New Jersey)	647,911	645,543
Huasteca Petroleum Co. (Pan American)	669,267	755,656
Mexican Eagle Oil Co., Ltd. (El Aguila)	411,699	782,947
Cia. Mexicana Holandesa "La Corona"	125,183	199,409
Cia. Mexicana Minerva of S. A.	.....	164,001
The Texas Co. of Mexico, S. A.	132,211	63,806
Sinclair Mexican Companies	346,682	280,108
Pierce Oil Corp.	4,785	4,725
Mexican Atlas Oil Co.	50,856	48,073
Panuco Boston Oil Co.	48,961	.....
Empire Gas & Fuel Co.	120,978	155,400
Mexican Gulf Oil Co.	.....	50,213
Totals	2,558,533	3,149,881

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100% Pennsylvania Motor Oil

—*guaranteed by the complete refinery which makes it*

Just as buyers of machinery prefer their purchases covered by one guarantee, you can buy Freedom 100% Pennsylvania Motor Oils on the same basis.

All elements which go into these exceptional products are refined by this one complete organization, The Freedom Oil Works Company, in its two plants, at Freedom and at Coraopolis, Penna.

At Freedom, is refined the wonderful 100% Pennsylvania Crude Neutrals which are used *exclusively*.

At Coraopolis, is refined the exceptional 450 Bright Stock (Sharples Process) which also is used *exclusively*.

Then the two are blended to high specifications by this 49 year old organization — you get a complete line of oils, consequently, that attracts business and HOLDS it.

Immediate deliveries can be made in tank cars, in compartment cars, barrels, or drums.

Guaranteed
100% PURE
PENNSYLVANIA
OIL

Permit No. 31

Also available for immediate shipment

450 Bright Stock (Sharples Process) which requires less neutral to blend to the ordinarily required specifications.

100% Pennsylvania Motor Oils, *blended to your own Specifications*, from Freedom 450 Bright Stock and Freedom 100% Pennsylvania Crude Neutrals.

Freedom Quality Stocks
600 Steam Refined
635 Steam Refined
650 Steam Refined

Freedom 300 Mineral Seal Oil made to Railroad Specifications.

Freedom Filtered Burning Oils.

The Freedom Oil Works Company
Freedom, Penna.

Established 1879
Refineries at Freedom and Coraopolis, Pennsylvania

FREEDOM

Is this burglar spending your money?

He has made another successful raid upon a filling station. The money he is spending upon Wine, Women and Automobiles belongs to the owner of a station in a town a hundred miles away. Will he be spending your money next week? Not if you install a York Burglary Chest,

YORK SAFE *and* LOCK COMPANY
York, Pa.

Cut painting costs

clean with Oakite!

KEEPING storage tanks bright and attractive is not only a matter of painting. It is also a matter of scheduled *cleaning*.

Go over your tanks regularly with an Oakite solution and you will find, as many other distributors have, that repainting is less often necessary. Oakite cleaning, by keeping the surface fresh and bright—free of grease, oil and other injurious accumulations—makes a paint job last longer.

Booklet "Oakite in the Oil Industry" gives further facts about this money-saving practice. A copy is yours on request.

Oakite Service Men, cleaning specialists, are located in the leading industrial centers of U. S. and Canada.

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OAKITE PRODUCTS, INC.
42C Thames St., New York, N. Y.

OAKITE
Industrial Cleaning Materials and Methods

Crude Oil Prices (in Effect Dec. 24)

(Crude prices for the whole year in OIL PRICE HANDBOOK published annually)

GULF COASTAL

Prices of The Texas Co.

Effective March 14, 1927

Grades A	$1.20	*Grades B	$1.15
‡Grades B (light crude):			
35-35.9	$1.37	38-38.9	$1.43
36-36.9	1.39	39-39.9	1.45
37-37.9	1.41	40 and above	1.47

*Grades B include all heavy crudes which do not meet tests for Grades A or for Gulf Coast light crude.

‡The Texas Co.'s gravity and price schedule on all below 35° is same as Humble's postings on Grades B.

ROCKY MOUNTAIN FIELDS

Prices of Ohio Oil Co., and Midwest Refining Co.

(Salt Creek prices effective July 26, 1928)

‡Salt Creek	29-29.9	$0.95
" "	30-30.9	1.02
" "	31-31.9	1.09
" "	32-32.9	1.16
" "	33-33.9	1.21
" "	34-34.9	1.26
" "	35-35.9	1.31
" "	36-36.9	1.36
" "	37 and above	1.41
Elk Basin		1.48
Grass Creek light		1.48
Big Muddy		1.33
Lance Creek		1.48
Rock Creek		1.33
Mule Creek		1.10
Rex Lake		1.10
‡Osage		1.48
‡Cat Creek, Mont.		1.48
Sunburst, Mont.		1.65
‡Hogback, N. Mex.		1.53
Artesia, N. Mex.		1.08

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

CALIFORNIA

***Standard Oil Co. of California**

Gravity	Signal Hill Seal Beach Alamitos Heights Huntington Beach	Inglewood Torrance	Olinda-Brea Canon Richfield	Athens-Rosecrans Dominguez	Whittier La Habra	Coyote Hills	Santa Fe Springs	Newhall McKittrick	†Kern River	Midway Sunset Buena Vista & Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Montebello	Santa Maria	Ventura
14-14.9	$ .85	$ .85	$ .85	....	$ .85	$ .85	....	$ .75	$ .50	$ .75	$ .75	$ .75	$ .75	$ .85	$ .85	$ .85
15-15.9	.85	.85	.85	....	.85	.85	....	.75	.50	.75	.75	.75	.75	.85	.85	.85
16-16.9	.85	.85	.85	....	.85	.85	....	.75	.50	.75	.75	.75	.75	.85	.85	.85
17-17.9	.85	.85	.85	....	.85	.85	....	.75	.50	.75	.75	.75	.75	.85	.85	.85
18-18.9	.85	.85	.85	....	.85	.85	....	.75	.50	.75	.75	.75	.75	.85	.85	.85
19-19.9	.85	.85	.85	....	.85	.85	....	.75	.50	.75	.75	.75	.75	.85	.85	.85
20-20.9	.85	.85	.85	....	.85	.85	....	....	....	.77	.77	.77	.77	.86	.85	.85
21-21.9	.89	.89	.89	....	.88	.88	.89	....	....	.79	.79	.79	.79	.89	.86	.86
22-22.9	.93	.93	.93	....	.91	.91	.92	....	....	.82	.82	.82	.82	.92	.87	.80
23-23.9	.97	.97	.97	....	....	.94	.95	....	....	.86	.86	.85	.85	.95	.90	.97
24-24.9	1.01	1.01	1.01	1.01	....	.97	.98	....	....	.90	.90	.88	.88	.98	.93	.94
25-25.9	1.05	1.05	1.05	1.05	....	1.00	1.01	....	....	.95	.95	.91	.91	1.01	.95	.98
26-26.9	1.09	1.09	1.09	1.09	....	1.04	1.04	....	....	1.00	1.00	.94	.94	1.04	.97	1.02
27-27.9	1.13	1.13	1.13	1.13	....	1.08	1.07	....	....	1.05	1.05	.98	.97	1.07	....	1.06
28-28.9	1.17	1.17	1.17	1.17	....	1.12	1.10	....	....	1.10	1.10	1.02	....	1.10	....	1.10
29-29.9	1.21	....	1.21	1.21	....	1.16	1.15	....	....	1.16	1.16	1.06	....	1.13	....	1.14
30-30.9	1.25	....	1.25	1.25	....	1.20	1.20	....	....	1.22	1.22	1.10	....	1.16	....	1.18
31-31.9	1.30	....	....	1.30	....	....	1.25	....	....	1.28	1.28	1.14	....	....	....	1.23
32-32.9	1.35	....	....	1.35	....	....	1.30	....	....	1.34	1.34	1.18	....	....	....	1.28
33-33.9	....	....	....	1.41	....	....	1.35	....	....	1.40	1.40	1.22	....	....	....	....
34-34.9	....	....	....	1.47	....	....	1.40	....	....	....	1.46	1.26	....	....	....	....
35-35.9	....	....	....	1.53	....	....	1.45	....	....	....	....	1.30	....	....	....	....
36-36.9	....	....	....	1.59	....	....	1.50	....	....	....	....	....	....	....	....	....
37-37.9	....	....	....	1.65	....	....	1.55	....	....	....	....	....	....	....	....	....
38-38.9	....	....	....	1.71	....	....	1.60	....	....	....	....	....	....	....	....	....
39-39.9	....	....	....	1.77	....	....	1.65	....	....	....	....	....	....	....	....	....
40-40.9	....	....	....	1.83	....	....	....	....	....	....	....	....	....	....	....	....
41-41.9	....	....	....	1.89	....	....	....	....	....	....	....	....	....	....	....	....
42-42.9	....	....	....	1.95	....	....	....	....	....	....	....	....	....	....	....	....

*Santa Maria and Ventura postings are by Union Oil Co. Union Oil Co. posts same prices in all above fields as Standard except in Montebello and Wheeler Ridge. It also posts Elwood Terrace at same price as Rosecrans—Dominguez and also posts Santa Maria (Orcutt) and Ventura.

†Kern River down to 12° gravity is 50c; 11-11.9 is 45c.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders effective on the date shown.

Refiners' Supplies

	Dec. 24	Dec. 17
Soda Ash light 58% bags, cwt.	$1.32	$1.32
Silicate of Soda 60 deg. drums, cwt.	$1.55	$1.55
Silicate of Soda 40 deg. tank cars, cv	$0.60	$0.60
Silicate of Soda 40 deg. drums cwt.	$0.80	$0.80
Sal Soda wks	$0.90-1.00	$0.90-1.00
Caustic Soda 76% solid, cwt.	$2.90	$2.90
Sulfuric Acid 60 deg. tank cars, f.o.b. shipping point per ton	$11.00	$11.00
Oleum 20%, fuming sulfuric, tank cars, wks.	$18.50	$18.50
Sulfur, flowers of cwt.	$3.10-4.00	$3.10-4.00
Liquid Chlorine, tank cars, wks. lb.	3.00-4.50	3.00-4.50

Compounders' Supplies

	Dec. 24	Dec. 17
Vegetable Oils		
Linseed carloads, spot lb.	10.00	10.00
Tanks, spot	9.20	9.20
Soya Bean, Tanks, coast, lb.	9.75	9.75
Oleic Acid		
Distilled, tanks lb.	9.25	9.25
Distilled, bbls. lb.	10.00	10.00
Saponified, tanks lb.	9.75	9.50
Saponified, bbls. lb.	10.50	10.25
Lard Oils		
Prime Winter Strained lb.	16.00	16.00
Extra Winter Strained lb.	14.00	14.00
Extra lb.	13.50	13.50
Extra No. 1 lb.	13.00	13.00
No. 1 lb.	13.00	13.00
No. 2 lb.	12.25	12.25
Tallow oil lb.	12.25	12.25
Neatsfoot Oil		
Pure, bbls. lb.	15.25	15.25
Extra, bbls. lb.	13.25	13.25
No. 1 bbls. lb.	13.00	13.00
Cold Pressed lb.	19.00	19.00
Fish Oils		
Menhaden Oil		
Light Pressed gal.	64-65	66-68
Light Pressed, tank cars, N. Y. gal.	59-60	59-60
White bleached gal.	70-73	73-74
Yellow bleached gal.	67-70	70-72
Whale, extra winter bleached, gal.	82-84	84
Naval Stores		
Steam distilled turpentine, N. Y. gal.	57	59
Steam distilled turpentine, Savannah gal.	52	54
Gum turpentine, N. Y. gal.	62	62
Gum turpentine, f.o.b. cars Savannah gal.	58	58
Wood Rosin F, N. Y. bbl.	$8.00	$8.20
Wood Rosin F, Savn'h bbl.	$7.20	$7.40
Gum Rosin B, N. Y. bbl.	$8.85	$9.00
Gum Rosin B, f.o.b. cars Savannah bbl.	$8.10	$8.30
Rosin oil, pure gal.	62	62
Rosin oil, compounded gal.	51	51
Pine Tar		
Kiln burnt bbl.	$13.00-14.00	$13.00-14.00
Retort bbl.	$13.50-14.50	$13.50-14.50
Alcohol		
Denatured, Formula 5, in bbls., per gal.	55-62	55-62

*Nominal.

Oil Merchandising

Problems have been discussed in 113 articles in *National Petroleum News* since the first of the year, or an average of more than two articles per issue. How oil marketing companies have increased their sales is told in these stories.
Here are the 113 articles listed for your file reference:

1928

Sells motor oil in sealed bottles Dec. 12, p. 106
How oil heating distributors can gage own markets Dec. 5, p. 24; Nov. 28, p. 27
Tank truck possibilities in marketing Dec. 5, p. 125
Motor vehicle cost accounting Dec. 5, p. 129
Selling the motor boat trade Nov. 28, p. 79
Bear cubs get customers for station Nov. 28, p. 82
Seals tanks to prevent "bootlegging" Nov. 21, p. 21
Sells oil and tickers instructions while driving Nov. 21, p. 76
Gasoline stations of the future Nov. 14, p. 27
Major companies lose gallonage to lesser Nov. 14, p. 36
Marketer installs complete brake service Nov. 7, p. 29
A lesson in salesmanship from the circus Nov. 7, p. 80
Uses anti-knock testing device Nov. 7, p. 83
One station sells 7500 lbs. grease in one season Oct. 31, p. 32
Talks on salesmanship Oct. 17, p. 38
Will brake testing be laid on marketer's doorstep Oct. 17, p. 177
Speed and accuracy pay marketer Oct. 17, p. 185
Tank truck merchandising in town and country Oct. 17, p. 195
Calls customers by first names Oct. 17, p. 195
What appeals to women at stations Oct. 10, p. 27
Truck trains sell in 40-mile radius Oct. 10, p. 68
Inn offers refreshments for man and beast Oct. 10, p. 76
Auto department stores planned for 200 cities Oct. 3, p. 17
Gallonage battle in California Oct. 3, p. 81
Marketer cuts station expense Oct. 3, p. 89
East sold through Socony Touring Service Sept. 19, p. 27
Free, serve-self car wash Sept. 12, p. 89
Pay stations, clean water, win business Aug. 29, p. 84
Plans service "communities" in California Aug. 22, p. 25
Profits from proper car greasing Aug. 22, p. 71
"Stuffed Owl" service doesn't hold public Aug. 22, p. 86
Greasing and brake station pays Aug. 15, p. 25
Builds sales and good will by radio touring Aug. 8, p. 25
Broadcasts Ohio trip series Aug. 8, p. 94
Bus terminal boosts sales Aug. 1, p. 20
Tourist tells what he expects from stations Aug. 1, p. 29
How one company built up station business Aug. 1, p. 72
Builds scenic camp to attract tourists July 25, p. 68
Everything for the car on one lot July 25, p. 83
Experiments in chassis lubrication July 18, p. 21
Grease salesman tells how to sell grease July 18, p. 81
River transportation may cut costs July 18, p. 90
How to serve one-car customer July 11, p. 84
Sells greasing jobs at pump July 4, p. 93
Adds brake tester to super station July 4, p. 101
Tourist camp increases gallonage June 27, p. 27
Vanity cause of too many pumps June 27, p. 52
Transportation costs cut with truck and trailer June 27, p. 69
Gives bonus for station salesmen's merit June 20, p. 27
Railway filling stations in Nashville June 20, p. 83
Sells engineering service with oil June 20, p. 105
Chassis greasing profit hardly scratched June 13, p. 21
Uses road map for station background June 13, p. 28
S. F. Bowser merchandising survey June 6, p. 29; May 9, p. 67; Apr. 25, p. 27; Apr. 18, p. 29.
Sells furnace oil through gas stations June 6, p. 57
Builds motor oil business from zero to million gals. June 6, p. 75
Speed driver is merchandising stunt for jobber June 6, p. 86
Parking space brings more customers May 30, p. 26
Greasing success means good merchandising May 30, p. 53
How car lubrication service adds to profits May 23, p. 19
Careful refining and selling build trade May 23, p. 56
Says small cash customer A-1 May 23, p. 74
Curb pump sells average of 1 gal. per inhabitant May 16, p. 90
Prize winning filling stations May 16, p. 93
Cigar lighters for filling stations May 16, p. 115
Jazz tunes help gasoline sales May 9, p. 56
Front seat driver stickers boosts lube sales May 9, p. 72
Free car delivery brings greasing jobs May 9, p. 84
Checks station men daily on overhead May 2, p. 69
Blank contracts pull business for burner oil Apr. 25, p. 103
Accounting methods for marketers Apr. 18, p. 49; Apr. 11, p. 102; Apr. 4, p. 66; Mar. 28, p. 54; Mar. 21, p. 49; Mar. 14, p. 66
Station men take home study course Apr. 18, p. 75
Sells gasoline thru advertising scenery Apr. 11, p. 26
Soliciting business by station help Apr. 11, p. 48
Commissions boost lube oil sales Apr. 11, p. 123
Quality counts in selling gasoline Apr. 4, p. 21
Personality at pump brings profits Mar. 28, p. 84
Paints basement to sell home burner oils Mar. 14, p. 70
Personal contacts get business Mar. 14, p. 76
Stations get tourist business Mar. 14, p. 88
Individually owned super stations thrive best Mar. 14, p. 97
Profitable business lies in company stations Mar. 7, p. 17
Uniform quality builds fuel oil trade Mar. 7, p. 97
Wars on unprofitable dealer Feb. 29, p. 19
Cuts book accounts by readjusting credits Feb. 29, p. 50
Artistic station has variety of services Feb. 29, p. 85
Eliminates dealers who show no profit Feb. 22, p. 25
Merchandising plan in price reduction Feb. 22, p. 95
Writes dealer letter on station business Feb. 22, p. 95
Chinaware is new merchandising premium Feb. 15, p. 27
Builds lube sales in two campaigns Feb. 15, p. 29
New markets for oil, gasoline stoves and heaters Feb. 15, p. 58
People will buy displayed side lines Feb. 8. p. 57
Chicago gasoline and oil sales analyses Feb. 8, p. 84
How to hold steady customers at grease stations Feb. 1, p. 29
Farmer co-operative companies increase Feb. 1 p. 69
Gives 5 gallons of gasoline with $1 of oil Feb. 1, p. 78
Uses chain store methods in selling gasoline Jan. 25, p. 27
Oil station premiums, what other merchants think Jan. 25, p. 57
How jobbers save money by co-operative traffic bureaus Jan. 25, p. 83
Virginia marketing code Jan. 18, p. 17
Cuts station losses by daily inventory Jan. 18, p. 30
Atlanta gasoline and oil sales analyses Jan. 4, p. 49
England opens drive-in stations Jan. 4, p. 88

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OIL STOCKS AND FINANCES

National Petroleum News

Cities Service Offers 10% Stock Rights

CLEVELAND, Dec. 24.—Cities Service Co. is offering common stock holders of Jan. 8 record the right to subscribe to one share of common stock at $65 a share for each 10 shares held that date. The present market price of the stock is about $25 a share higher.

Holders of stock purchase warrants attached to the company's 5 per cent gold debentures due in 1963 have been granted the right to take up the stock up to, and including Dec. 31 and become holders of record Jan. 8, permitting them to participate in the stock purchase right granted other stockholders. Ordinarily stock purchased by reason of the warrants does not become of record until 30 days after the warrants are presented.

Cities Service reports that in the 12 months ended Nov. 30 it earned $29,447,023 available for stock and reserves, a considerable gain over earnings in the preceding 12 months.

Continental Buys Union's Mountain Properties

DENVER, Dec. 21.—Continental Oil Co. has purchased all the Rocky Mountain oil and gas producing properties and equipment of the Union Oil Co. of California. No new financing is contemplated by Continental according to its president, S. H. Keoughan, who issued this statement:

"Continental Oil Co. has acquired the oil and gas properties of Union Oil Co. of California in the Rocky Mountain states embracing the whole or greater part of the productive acreage in eight proven oil fields with 52 wells capable of producing about 15,000 barrels of oil a day. The cities of Fort Collins, Colo., and Cheyenne, Wyo., are supplied with gas from one of the properties.

"Included in the deal are two casinghead gasoline plants and all the equipment necessary to operate the properties. On some of the structures, only the discovery well has been drilled and in all of the fields are many undrilled proven locations.

"Continental Oil Co. contemplates no financing in connection with the deal."

Financial Notes

The Texas Corp.—R. O'Garrio has been elected a vice president of the Texas Corp. and also vice president in charge of the purchasing department of The Texas Co., the operating company.

Middle States Oil Corp.—Stockholders' protective committee has announced that a reorganization plan is being negotiated. The committee states it believes that with proper reorganization the stockholders will have substantial equities.

Sylvestre Oil Co.—This fuel oil concern operating in and about New York announces that its November sales amounted to 1,808,195 gallons, approximately three times the sales in November, 1927.

Allegheny Gas Issues $1,800,000 Bonds

CLEVELAND, Dec. 24.—Allegheny Gas Corp., producer and distributor of natural gas in West Virginia and Ohio, has just offered at 98 and interest $1,800,000 15-year first mortgage and collateral 6½ per cent gold bonds. The bonds are dated Nov. 1, 1928.

Each $1000 bond carries a warrant entitling the holder to purchase a unit of 10 shares of the company's common stock at $5 a share to and including Nov. 1, 1933; at $7.50 a share to and including Nov. 15, 1928, and at $10 a share to and including Nov. 1, 1943.

The company is supplying gas under contract to the Huntington Development & Gas Co., United Fuel Gas Co., South Penn Oil Co. and Monickel Gas Co., and also is wholesaling to the Marmet Gas Co., Owens Bottle Co., and Libbey-Owens Sheet Glass Co. Its subsidiary in Ohio, the Upham Gas Co., is supplying gas to such plants as the Pittsburgh Plate Glass Co., Lamb Glass Co., Hope Engineering & Supply Co., and C. & G. Cooper Co. around Mt. Vernon as well as domestic consumers in that vicinity.

The company reports it has 147 gas wells in Lincoln and Kanawha counties, W. Va., and Knox county, O. Last year production averaged 2 billion cubic feet daily.

American Oil Purchases Marketer in Virginia

RICHMOND, Va., Dec. 22.—American Oil Co. of Baltimore which is half owned by the Pan American Petroleum & Transport Co. has bought the Capitol Oil Co.

Capitol Oil Co. has distribution in Petersburg, Wakefield, Hopewell, Boydton, Toane, Mineral, Culpepper and Warrenton, Va., and White Sulphur Springs, W. Va.

The properties will be operated as the Capitol Oil division of the American company. Divisional headquarters will be in Petersburg.

S. O. Kentucky Declares 50% in Stock

CLEVELAND, Dec. 24.—Standard Oil Co. of Kentucky will pay a 50 per cent stock dividend Dec. 31 to holders of Dec. 27 record. Declaration of this dividend was made by directors of the company Dec. 20 following an increase in the capital stock from $17,500,000 to $35,000,000.

Par value of the stock was reduced from $25 a share to $10 a share and new stock, on a 2½ for 1 share basis, will be given holders when their old certificates are received by the company at the home office in Louisville, W. E. Smith, president, has announced.

No fractional shares are to be issued but stockholders will be paid cash for their fractional holdings on a basis of the average closing bid for the $25 stock on the New York Curb Market from Dec. 20 to Dec. 27, inclusive.

Union Oil Offers Stock Purchase Rights

LOS ANGELES, Dec. 21.—Union Oil Co. of California stockholders of Dec. 28 record will be granted right to buy at $35 a share one share for each 10 held. This offering to take 379,993 shares.

Payment is to be made as follows: $5 Feb. 15, and $10 on each of these dates, May 15, Aug. 15, and Nov. 15.

President W. L. Stewart announced that the new capital would be devoted in general to making financial provision for the conduct and growth of the company's business.

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IN RETROSPECT

IN RETROSPECT we wish to express thanks to you, the buyer of Youngstown Tanks, for the greatest business year ever enjoyed by this big two-fisted company, in a year when "in the red" has been heard so often.

THE YOUNGSTOWN BOILER & TANK COMPANY
YOUNGSTOWN—OHIO

Offices in Principal Cities

Youngstown TANKS
"KEENE STANDARDIZED MADE"

Transactions in Oil Shares on New York Stock Exchange

1927 High	1927 Low	1928 High	1928 Low	Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Dec. 22 Sales	First	High	Low	Last	Change
37⅞	27⅝	43⅜	27⅛	(sh) 922,075	N.P.	Amerada Corp.	50cQ	Oct. 31, 28	15,800	37	38¾	37	38⅝	+ 1⅝
82½	35½	85	51¼	(sh) 209,180	N.P.	American Republics Corp.	....	.....	6,700	57⅛	62⅜	55⅛	59⅛	+ 1⅜
50¼	35	53⅛	37½	$56,000,000	$ 25	Associated Oil	50cQ	Dec. 31, 28	110	45	45	44	44	— 2
....	....	63¼	50	50,000,000	25	Atlantic Refining (New stock)	25cQ	Dec. 15, 28	71,400	55¼	56⅞	54¼	56¼	+ 1
119	115½	118¼	114½	20,000,000	100	do pfd	$1.75Q	Nov. 1, 28	40	116¼	116½	116¼	116¼	— ½
35½	20¾	53	20	30,971,225	25	Barnsdall Corp. A	50cQ	Oct. 31, 28	84,700	39⅞	42	39⅛	41¼	+ ⅞
32½	20½	51¼	20	581,850	25	do B	50cQ	Oct. 31, 28	200	40¼	40½	40½	40½	— 1¾
18¼	14	24½	12¼	946,518	N.P.	Beacon Oil	....	.....	14,000	22¾	22¾	21¾	22¼	+ ¼
32⅞	20	36	24	51,524,150	25	California Petroleum	25cQ	Oct. 1, 28	.....	.....	.....	.....	.....	.....
96⅝	65	94⅞	68	20,980,400	100	General Asphalt	....	.....	7,700	73¼	74¼	72⅜	74¼	+ 1½
144⅞	107½	141½	110⅛	6,662,200	100	do pfd	$1.25Q	Dec. 1, 28	.....	.....	.....	.....	.....	.....
175¾	60⅛	167	79	25,000,000	100	Houston Oil	....	.....	17,200	80	89⅞	79	85⅛	+ 3¼
32¾	17⅜	38⅜	21¾	(sh) 659,000	N.P.	Independent Oil & Gas	37½cQ	Oct. 31, 28	80,800	31⅛	33⅜	30½	32	+ ⅝
12⅛	7⅜	39⅜	9	$3,582,670	$ 10	Indian Refining	....	Dec. 15, 20	24,400	27¾	30⅜	27½	29	+ 1⅜
12	7¼	37¼	8¾	4,550,110	10	do ctfs	....	.....	9,300	26¼	27¾	26	27¾	+ 1⅜
112	99	185	40	2,296,400	100	do pfd new	....	Dec. 15, 21	.....	.....	.....	.....	.....	.....
37⅜	20½	39½	27⅜	(sh) 3,992,234	N.P.	Lago Oil & Transport	75cQ	Nov. 1, 28	1,600	31¼	32	31	31½	0
18⅛	10	19¾	9¾	(sh) 1,187,003	N.P.	Louisiana Oil Refining	....	.....	19,600	14¾	15⅛	14⅛	14⅝	— ⅜
97	85¼	96	78	$4,000,000	$100	do pfd	$1⅜Q	Nov. 15, 28	.....	.....	.....	.....	.....	.....
22⅜	12	25½	12⅜	(sh) 330,000	N.P.	Maracaibo Oil	....	.....	1,900	17⅞	17⅞	16¼	17⅞	+ ⅞
58½	31	49¾	33	(sh) 2,316,851	N.P.	Marland Oil Co	....	Mar. 31, 27	49,400	41⅜	43⅛	40	42	0
320	200	360	250	$45,942,800	$100	Mexican Petroleum	$3Q	Oct. 20, 28	.....	.....	.....	.....	.....	.....
....	....	....	....	12,000,000	100	do pfd	$2Q	Oct. 20, 28	.....	.....	.....	.....	.....	.....
9¼	3	73	4⅜	(sh) 995,500	N.P.	Mexican Seaboard	....	Nov. 15, 24	257,800	53⅜	62	51½	62	+ 8½
39⅜	25⅛	44½	25⅛	(sh) 1,857,461	N.P.	Mid-Continent	....	Aug. 1, 27	79,400	35⅜	39⅜	35	37⅛	+ 1⅜
105	97	117	103¼	$6,718,000	$100	do pfd	$1.75Q	Dec. 1, 28	200	117	*117	115⅛	117	+ 2
3⅜	1⅜	7⅛	2⅜	24,060,470	10	Middle States	....	July 1, 23	34,100	4½	4⅝	4⅛	4⅝	0
2⅜	1⅜	5⅛	1½	5,739,750	10	do ctfs	....	.....	9,000	3¼	3¼	3	3¼	0
1⅞	1	2¼	1	(sh) 3,500,000	N.P.	Pacific Oil	....	.....	9,400	1¼	1⅜	1¼	1¼	0
65⅞	40½	55½	38¼	$50,000,000	$ 50	Pan American P. & T.	....	Oct. 20, 27	2,100	46	47¾	45¾	47	— ½
66⅜	40¼	58⅛	37¾	121,100,000	50	do B	....	Oct. 20, 27	38,900	47⅛	49½	47	48¾	+ ¾
37⅞	16¾	28¾	15½	(sh) 400,000	N.P.	Pan American Western B	....	Jan. 30, 27	7,500	18	18	18	18	0
18⅞	8	21¾	11½	(sh) 199,370	N.P.	Panhandle P. & R.	....	.....	2,800	12⅛	14	12	12½	+ ¼
83	54	106¼	70	$2,935,200	$100	do pfd	....	July 2, 23	.....	.....	.....	.....	.....	.....
60¼	36¼	53⅞	35¼	(sh) 2,406,796	N.P.	Phillips Petroleum	37½cQ	Oct. 1, 28	29,100	44	45	43⅜	44½	+ ½
1⅜	⅝	5¼	½	$29,622,925	$ 25	Pierce Oil	....	.....	4,500	2¼	2⅞	2½	2⅝	— ⅛
24	13½	50	16½	15,000,000	100	do pfd	....	Feb. 1, 22	1,700	29⅞	31	29	31	+ 1
5⅜	2½	6⅝	3½	(sh) 2,500,000	N P.	Pierce Petroleum	....	.....	4,500	5¼	5¼	5	5	0
....	....	....	....	$65,575,000	$ 25	Prairie Oil & Gas	....	Aug. 31, 27	41,900	61⅜	63½	60½	62	0
33⅜	16¾	29⅜	16	$37,450,850	$ 50	Producers & Refiners	....	Sept. 15, 23	2,500	22⅞	23¾	23¼	23⅝	+ ⅝
50	36⅛	49⅝	41	2,845,350	50	do pfd	....	May 1, 25	60	44½	44½	43	43	0
33⅛	25	31¼	19	75,952,250	25	Pure Oil Co.	25cQ	Dec. 1, 28	32,100	26⅛	27½	26	26¾	+ ⅜
115½	111⅜	119	108	13,000,000	100	do 8% pfd	$2Q	Oct. 1, 28	210	111½	111⅞	111	111⅞	+ ⅞
28⅜	25⅛	56	23½	$43,764,450	$ 25	Richfield Oil	50cQ	Nov. 15, 28	41,100	45	46	43½	45½	+ ½
54½	44¼	64	44⅜	(sh) 585,293	13.40	Royal Dutch N. Y. shares	$1.879	Aug. 3, 28	1,900	53¼	53⅞	53¼	53½	0
47⅛	41⅜	57½	39⅜	(sh) 67,300	£2	Shell Transport & T.	$1.455	July 23, 28	100	56¼	56¼	56¼	56¼	+ ⅞
31¾	24⅝	39⅝	23¼	(sh) 10,000,000	N.P.	Shell Union Oil	35cQ	Dec. 31, 28	32,900	28⅛	28⅜	27½	28⅜	+ ⅜
26⅜	14¼	27¼	18½	$7,208,080	$ 10	Simms Petroleum	40c	Dec. 15, 28	5,300	22⅜	22⅝	22	22⅜	— ⅜
22⅜	15	46¾	17⅜	(sh) 4,503,031	N.P.	Sinclair Consolidated	....	May 31, 24	511,900	36⅝	42¼	35¾	41½	+ 4½
104½	97	110	102½	$16,310,100	$100	do pfd	$2Q	Nov. 15, 28	100	109	109	109	109	0
37⅝	24⅛	42⅝	25	27,396,590	25	Skelly Oil Co.	50cQ	Dec. 15, 28	14,500	34⅝	36⅛	34⅛	35¼	0
60¾	50¾	80	53	(sh) 13,016,434	N.P.	S. O. California	‡62½cQ	Dec. 15, 28	52,400	70⅜	73	69½	71⅞	+ ⅞
41⅜	35⅛	59⅜	37¾	$610,195,375	$ 25	S. O. New Jersey	‡25cQ	Dec. 15, 28	70,800	52½	53⅞	51⅞	53⅝	+ 1
34⅛	29¾	42⅛	28¾	431,973,275	25	S. O. New York	40cQ	Dec. 15, 28	35,000	38	41¼	37½	40⅝	+ 2½
34⅛	30	77	31½	(sh) 1,300,532	N.P.	Sun Oil	‡25cQ	Dec. 15, 28	2,000	65	65½	63	65	— ½
101⅝	99	110	100	$5,000,000	$100	do pfd	$1.50Q	Dec. 1, 28	90	105	105	103	104	— 3½
6⅜	3⅛	14¼	2⅜	(sh) 1,186,078	N.P.	Superior Oil Corp	....	Dec. 20, 20	42,300	9¾	10⅜	9	10	+ ½
58	45	74⅜	50	$210,577,050	$ 25	The Texas Corp	75cQ	Oct. 1, 28	36,800	64⅜	65¼	63⅝	65	+ ⅝
18⅞	12	26⅝	12⅛	8,380,340	10	Texas Pacific Coal & Oil	....	Jan. 3, 28	23,000	17⅝	19¾	17	18½	+ ½
29⅛	19	41½	19⅝	(sh) 2,168,498	N.P.	Tide Water Oil Co.	20cQ	Dec. 31, 28	4,600	35⅝	38	34¼	37⅝	+ 1⅝
90⅛	85	100⅛	86¾	$20,705,200	$100	do 5½% pfd	$1.25Q	Nov. 15, 28	1,900	97	97	96⅝	96⅝	— ⅜
19⅛	15¾	25	14¾	(sh) 4,824,766	N.P.	Tide Water Associated	....	Aug. 1, 27	35,600	19⅞	21¾	19¼	21½	+ 1⅜
90¾	85	91¾	81⅞	$72,745,958	$100	do pfd	$1.50Q	Oct. 1, 28	3,400	90	90	89¼	90	0
10⅜	3¼	14½	6¾	(sh) 3,842,029	N.P.	Transcontinental Oil	....	.....	95,100	10⅛	12⅞	10	11½	+ 1⅛
56⅛	39⅜	58	42¾	$40,841,100	$ 25	Union Oil of California	50cQ	Nov. 10, 28	12,400	53⅞	54	51¼	52½	— 1⅞
127½	94	128⅛	110	31,061,200	100	Union Tank Car Co.	$1.25Q	Dec. 1, 28	100	124½	124½	124½	124½	+ 5½
34½	24⅛	44⅞	26	(sh) 357,197	N.P.	Warner Quinlan	50cQ	Oct. 1, 28	11,300	38¾	40⅞	38⅝	40½	+ 1¾
27⅛	20	38	20⅜	(sh) 490,000	N.P.	White Eagle Oil & Refining	50cQ	Oct. 20, 28	7,400	35⅛	36¼	44⅝	36¼	+ ⅞
....	....	22⅞	18⅛	(sh) 418,967	N.P.	Wilcox Oil & Gas	....	May 10, 28	3,000	18½	21¼	17¼	20½	+ 1⅞

*New High †New Low ††Ex-dividends ‡Also extras s-Stock Total Sales 2,007,610

Pittsburgh Stock Exchange

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended Dec. 21 Sales	First	High	Low	Last	Change
....	....	4	2⅛	N.P.	Ark. Nat. Gas (new)	14,010	3½	3¾	3½	3¾	+ ¼
....	....	7¾	6¾	N.P.	do pfd	3,654	7⅞	7¾	7⅞	7⅞	0
98¾	80⅛	130	90¼	100	Colombia Gas	.....	.....	.....	.....	.....	.....
107⅞	100	124	107	100	do pfd	.....	.....	.....	.....	.....	.....
15	7⅛	10	6¼	10	Devonian Oil	201	7¼	7½	7	7	— ¼
....	....	15	5	10	Dixie Gas & Util.	11	5½	5½	5½	5½	+ ¼
....	....	95	75	100	do pfd	.....	.....	.....	.....	.....	.....
117⅛	115	116	115	100	Duquesne Light pfd	.....	.....	.....	.....	.....	.....
....	....	85	80⅛	100	Fayette County Gas	.....	.....	.....	.....	.....	.....
12¼	6	22	12	N.P.	Houston Gulf Gas	.....	.....	.....	.....	.....	.....
59¼	37¼	69	48⅝	$ 25	Lone Star Gas	3,013	64¾	*69	x64¾	68½	+ 4
....	....	38	35	25	Petroleum Exploration	.....	.....	.....	.....	.....	.....
....	....	.75	.45	....	Phoenix Oil pfd	1,100	.70	.70	.65	.65	— .10
3⅞	3	4⅞	3	5	Pittsburgh Oil & Gas	600	3	3	3	3	— 1
....	....	....	....	....	Plymouth	5,185	26¾	29⅜	26¾	29⅜	.....
8	5⅛	7¼	5½	10	Salt Creek Cons.	200	6	6	5⅞	5⅞	— ⅛
26½	17	22	16½	10	Tidal Osage	.....	.....	.....	.....	.....	.....
43	33	40	30½	N.P.	Waverly Oil Wks. A	90	35	35	35	35	— 4
....	....	19	16	$ 25	Wiser Oil	.....	.....	.....	.....	.....	.....

*New high record †New low.

Pittsburgh Curb Exchange

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended Dec. 21 Sales	First	High	Low	Last	Change
....	....	....	....	....	Ark. Gas (old)	.....	.....	.....	.....	.....	.....
95	88	150¼	120	25	Gulf Oil	.....	.....	.....	.....	.....	.....
....	....	115	115	....	Houston Gulf Gas pfd	.....	.....	.....	.....	.....	.....
10¾	5⅛	9	4¾	25	Leonard Oil & Dev.	.....	.....	.....	.....	.....	.....
....	....	9⅞	9⅞	....	Pennkas Oil & Gas	.....	.....	.....	.....	.....	.....
....	....	....	....	....	Phoenix Oil	2,000	.60	.60	.60	.60	0
2¼	1¾	....	....	5	Pittsburgh Oil	.....	.....	.....	.....	.....	.....
31	19	30¼	16¾	5	Plymouth Oil	500	27	27	27	27	0
6	5	4¾	4	5	States Oil	.....	.....	.....	.....	.....	.....
3⅛	1⅜	4½	2¼	1	Texon Oil & Land	.....	.....	.....	.....	.....	.....
23¾	18	18	15	10	Tidal Osage Non-vgt.	.....	.....	.....	.....	.....	.....

*New High †New Low x Ex Dividend

Cleveland Stock Market

Dec. 21	Par Value	Bid	Asked
Canfield Oil Co.	100	....	....
do pfd	100	x101¼	....
Fred G. Clark	10	7½	9
National Refining	25	36	37
do pfd	100	x135	....
Paragon Refining Co.	25	20⅜	22½
do pfd	N.P.	x42	44⅞
do ctf. of deposit	..	20⅛	22½

xEx dividend.

Oil Dividends

	Amount	Stock of Record Payable	Record
Ark. Nat. Gas pfd. q	15c	Ja . 2	Dec. 26
British-American q	25c	Jan. 2	Dec. 14
do extra	25c	Jan. 2	Dec. 14
Cities Service m	10c	Jan. 2	Dec. 15
do stock m	½%	Jan. 2	Dec. 15
do pfd m	50c	Jan. 2	Dec. 15
do pfd. BB	50c	Jan. 2	Dec. 15
do pfd. b	5c	Jan. 2	Dec. 15
Indian Refg. pfd. q	$1.75	Jan. 2	Dec. 24
do refd. pfd. q	$1.75	Jan. 2	Dec. 24
Lion Oil Refg. q	50c	Jan. 27	Dec. 28
Midwest Refg. a	$4	Dec. 14	Dec. 10
do extra	$35	Dec. 14	Dec. 10
Mountain & Gulf q	2c	Jan. 15	Dec. 31
Nat. Fuel Gas q	25c	Jan. 15	Dec. 31
New Bradford Oil q	12½c	Jan. 15	Dec. 31
White Eagle q	50c	Jan. 20	Dec. 31

Midwest Refg. Pays 70% Extra in Cash

CLEVELAND, Dec. 22.—Midwest Refining Co. which is 99.6 per cent owned by the Standard Oil Co. of Indiana paid $4 a share regular annual dividend and $35 a share extra Dec. 14.

Midwest has issued 624,081 shares, making the total payment $24,339,159. More than $24,000,000 of that sum will appear in the Indiana company's income statement for 1928.

One Mind Is Not Enough To Tackle This Problem

Dear Mr. Editor:

Years ago Sol Smith Russell presented a play "The Honorable John Grigsby" really a portrayal of Abe Lincoln as a barrister, with a clerk named "Coke" who continually referred to his 40 years' experience in a lawyer's office (which did him no good as an exponent of law).

I am reminded of poor Coke by my own 35, going on 40 years', experience in the oil industry. Also having in mind future need of leadership and capable men to carry the burden, including that of carrying my name, I naturally desired and aspired to raise such a man, one of my own, which ambition my wife apparently approved and indicated her cooperation to this laudable end.

With this expectation just imagine the fond hopes of realization and the gratification attending fulfillment in so noble a cause.

Then consider the reaction, when early this morning she presents a lusty voiced baby sister and defends her act with the allegation that women will develop greater interests and show leadership in future activities of the oil industry. Hence she decided to provide a candidate of her own sex, and, by heck, she did just that.

Now, what would you do about it? Your consideration and best advice is needed to preserve perfect harmony and unity of thought. If you can't answer, possibly some reader can. Will you find out please and advise.

Yours sincerely, "Gus."

(Editor's note: "Gus" is G. J. Steigerwald, Steigerwald Petroleum Co., Cleveland.)

TULSA, Dec. 22.—Horace Canon, salesmanager for the Root Refineries, Inc., Shreveport, spent a few days in Tulsa just prior to the Christmas holiday on business and visiting relatives.

THE OIL INDUSTRY EXCHANGE

Situations Open

SALESMEN WANTED. One of our clients needs salesmen in midwest territory including Western Penna., Ohio, Indiana, Illinois, Missouri, Iowa, Kansas and a few in Southern and Western States. Men who are now traveling preferred. Those who are selling oil and gasoline could add this line. No samples to carry. Send full particulars covering experience and territory now covered. Anchor Advertising Agency, Third National Building, Dayton, Ohio

COMMISSION TANK WAGON MAN WANTED to become associated with new company Gary, Indiana. Investment not required but small interest will be given competent man, with right to purchase additional later. Address Box 249.

MEN—INTERESTED SOUTH AMERICAN WORK with large oil, mining companies who pay fare and expenses write for our warranted service offer. South American Service Bureau, 14,600 Alma, Detroit, Mich.

GENERAL MANAGER WANTED

to assume entire charge of company's field operations, man thoroughly experienced in Appalachian fields. Must have had responsible charge of drilling, production and operation. Company is increasing its production from its present fee-owned proven properties. Compensation will be very attractive for the right man. Replies will be confidential. They must state age, experience in detail, education and training, and must give responsible references. Technical education useful but not indispensable.

Address Box 242

SALESMEN WANTED

An old established refiner marketing nationally advertised Pennsylvania oil requires the services of two salesmen, one for the eastern half of Michigan, northeastern Indiana and northwestern Ohio and the other for eastern Canada. An excellent opportunity is offered to branded oil salesmen who can show successful sales records. Give details of former connections, experience and records.

Address Box No. 256, care National Petroleum News.

GRADUATE CHEMIST WANTED

experienced in lubricating grease research and manufacture, to take charge of grease plant in large midcontinent petroleum refinery. Reply should include complete information concerning training, experience, salary desired, etc.

Address Box 257

Advertisers having box numbers should be addressed in care of National Petroleum News, 1213 W. 3rd St., Cleveland, Ohio, unless otherwise specified.

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L. G. Huntley J. R. Wylie, Jr.
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PETROLEUM GEOLOGISTS AND ENGINEERS
Frick Building PITTSBURGH, PA.

Business Opportunities

SALES CONNECTION

An old established Oil Company, Eastern Location, doing a marketing and compounding business, manufacturing their own greases and specialties, desires to make a connection with a wholesale dealer, marketer or exporter as a base of supply for staple and special greases, etc.

Will negotiate a working arrangement of considerable advantage to such a connection or interested party in order that surplus space and manufacturing facilities may be utilized without the necessity of an aggressive open market competition.

This opportunity is well worth investigation by any sales organization with an established outlet of material amount who do not have an exclusive factory connection.

An interview will be arranged and complete details advanced at once to responsible parties. Address Box 252.

For Sale

BULK PLANT FOR SALE

Bulk plant with pumps, trucks and etc. complete. One of best locations in South. Doing good business.

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12 YEARS experience in oil accounting, exclusively. We install systems and make audits. Specialists in analyzing losses common to the oil jobber.

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All advertisements carried on this page are payable in advance.

Standard Oil Stocks on New York Curb

1927 High	1927 Low	1928 High	1928 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Sales	Week Ended Dec. 22 First	High	Low	Last	Change
21⅝	17⅞	22⅜	17	£ 4,126,460	£ 1	Anglo-American Oil	24.4c	June 6, 28	2,900	17⅜	17¾	17⅛	17½	+ ⅛
21½	17⅝	20½	16⅜	.....	£ 1	do cts. non-voting	.....	.....	300	17	17½	17	17½	— ⅛
3¾	¾	5	1¼	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	1,800	2⅜	2⅞	2⅛	2⅞	+ ⅜
6½	2½	9¾	3¼	$ 10,000,000	$ 50	do pfd	.....	.....	.....	.....	.....	.....	.....	.....
69	50	56	44½	1,000,000	25	Borne Scrymser	‡$1S.A.	Oct. 15, 28	.....	.....	.....	.....	.....	.....
60	45	76	58	10,000,000	50	Buckeye Pipe Line	$1Q	Dec. 15, 28	200	63¼	66⅛	63¼	66¼	+ 1
126	76½	161	117¼	3,000,000	25	Chesebrough Mfg	‡$1Q	Dec. 28, 28	.....	.....	.....	.....	.....	.....
22⅝	16¼	23	16	36,123,350	10	Continental Oil	.....	Dec. 15, 27	8,600	19½	20	19¼	19½	+ ¼
137	89	114	67	1,500,000	50	Cumberland Pipe Line	$1Q	Dec. 15, 28	50	67	67	†67	67	— 2
68⅛	47	88	64½	5,000,000	100	Eureka Pipe Line	$1Q	Nov. 1, 28	50	68	68	68	68	0
13½	3½	13	4¼	16,000,000	100	Galena Signal Oil	.....	June 30, 25	200	5⅞	5⅞	5⅞	5⅞	— 1⅜
59¾	23	87¾	27	4,000,000	100	do new pfd	.....	June 30, 26	10	78	78	77⅜	77⅜	— 5⅛
60⅛	35½	89¾	35	2,000,000	100	do old pfd	.....	June 30, 26	.....	.....	.....	.....	.....	.....
68½	54	114¾	59¼	73,685,700	25	Humble Oil & Refining	‡30cQ	Oct. 1, 28	8,100	97½	102	96¼	99⅛	+ 1⅛
182	123¾	290½	176½	20,000,000	100	Illinois Pipe Line	$10S.A.	Dec. 15, 28	350	272½	277	270½	274	— 1
64¾	37¾	104	56¾	(sh) 6,591,458	N.P.	Imperial of Canada	‡25cQ	Dec. 1, 28	3,800	88	89	88	89	+ ¼
94½	61	91⅞	74⅞	$ 5,000,000	$ 50	Indiana Pipe Line	‡$1Q	Nov. 15, 28	400	82¾	82¾	82¾	82¾	+ 1½
39	28¼	55	35	(sh) 7,123,544	N.P.	International Petroleum	25c	June 30, 28	7,800	47⅛	47¾	46½	47	— ½
24	13¼	32⅝	19⅜	6,363,350	12.50	National Transit Co	25cQ	Dec. 15, 28	2,400	21¾	22¼	21¾	22	0
44½	31¾	75	38½	5,000,000	100	New York Transit	.....	July 15, 26	50	70	70	70	70	+ ⅛
100	70	69	56½	2,000,000	50	Northern Pipe Line	(a)$3S.A.	July 2, 28	.....	.....	.....	.....	.....	.....
67⅞	52	83½	58	60,000,000	25	Ohio Oil Co	50cQ	Dec. 15, 28	3,800	71½	76¾	71½	73⅞	— ⅝
39	12	84	28	10,000,000	25	Penn Mex. Fuel	$75c	Dec. 16, 28	800	30	31⅛	30	30	— 1
55½	45⅜	68	46	60,479,000	25	Prairie Oil & Gas	.....	Aug. 31, 27	8,500	56½	59½	56½	59½	+ 2¾
190	132	278	172	81,000,000	100	Prairie Pipe Line	$3.50Q	Oct. 31, 28	1,850	246½	265	246½	260	+16½
.....	.....	55¾	51	101,250,000	25	do new	.....	.....	.....	.....	.....	.....	.....	.....
201½	175½	216	167	4,000,000	100	Solar Refining	$5S.A.	Dec. 20, 28	100	220	220	220	220	+ 5
27¼	15½	35⅛	12	1,000,000	10	Southern Pipe Line	$2	Dec. 1, 27	100	15⅞	15⅞	15⅜	15⅞	— 1⅛
41½	35	71⅞	36¾	20,000,000	25	South Penn Oil	‡50cQ	Dec. 31, 28	1,800	66½	67	65	66½	— ⅝
83	55½	100¾	70	3,500,000	100	South West Pa. Pipe Lines	$1Q	Oct. 1, 28	.....	.....	.....	.....	.....	.....
81⅛	64⅝	95⅞	70⅞	230,788,513	25	S. O. Indiana	‡62½cQ	Dec. 15. 28	38,100	86⅞	90⅜	85⅛	90	+ 3¾
20⅞	14⅜	27⅝	15	8,000,000	25	S. O. Kansas	.....	June 16, 24	4,200	21	21	19¾	21	0
130	111½	179¾	122¼	17,103,011	25	S. O. Kentucky	‡$1Q	Dec. 31, 28	2,200	161¼	165	161	164¾	+ 2¾
49½	40	54⅞	39⅞	4,601,100	25	S. O. Nebraska	‡62cQ	Dec. 20, 28	.....	.....	.....	.....	.....	.....
87½	72	134	71	14,000,000	25	S. O. Ohio	62½cQ	Oct. 1, 28	100	115	119½	115	118¼	+ 1¼
122	117¼	125	116	7,000,000	100	do pfd	$1.75Q	Dec. 1, 28	70	116	116¼	116	116¼	— ¾
21	14½	23½	16	861,466	25	Swan Finch Co	30c	June 30, 28	.....	.....	.....	.....	.....	.....
....	....	101¼	72	126,154,100	25	Vacuum Oil	‡75cQ	Dec. 20, 28	8,500	93⅝	96⅞	93¼	96½	+ 2¼

Independent Oils on New York Curb

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Sales	Week Ended Dec. 22 First	High	Low	Last	Ch'ge
2⅛	.55	1½	.53	$ 5	Amer. Con. Oilfields	25,900	66	72	†53	64	— 2
7½	2¾	9½	3⅜	N.P.	Amer. Maracaibo	8,600	7	7½	6⅝	6¾	— ½
2¾	1	4½	2¼	$ 10	Argo Oil	500	3⅜	3½	3¼	3¼	0
9¾	6¾	10¼	3⅜	10	Arkansas Nat. Gas	1,500	3⅜	3¾	3⅜	3¾	+ ⅛
.....	.....	29⅜	3⅞	...	Barnsdall deb. war	34,600	15⅛	16⅞	13⅝	16	+ ¾
40	20½	55	29⅞	N.P.	British American	.....	.....	.....	.....	.....	.....
28⅛	15½	23⅞	3⅞	25c	Carib Syndicate N	2,900	4	4¼	4	4⅛	+ ⅛
58¾	40¼	90⅞	54	$ 20	Cities Service	131,800	90⅛	*90⅞	87⅝	87¾	— 2
95⅜	87	103½	94½	100	do pfd	1,900	99	99	98⅜	98⅝	— ⅝
8⅛	7⅛	9⅝	8⅞	10	do pfd. B	100	9⅛	9⅛	9⅛	9⅛	+ ⅛
29¼	22½	....	28¼	10	do banker's shares	.....	.....	.....	.....	.....	.....
3⅞	1⅜	2¼	1	1	Colombia Syndicate	11,100	1¼	1¼	1⅛	1⅛	0
...	...	17¾	9¾	....	Colon Oil	3,900	13⅜	13⅜	11⅛	11⅞	— 1⅛
9¾	6¾	8¼	6¼	10	Consolidated Royal	200	6½	6½	6½	6½	+ ¼
14⅞	9½	17½	9⅞	N.P.	Creole Petroleum	36,800	10¼	10⅜	†9⅞	10	— ¼
3	.50	3¼	.76	N.P.	Crown Central	8,400	1¾	1⅞	1⅜	1½	— ⅜
...	...	15	6¾	....	Crystal Oil	.....	.....	.....	.....	.....	.....
...	...	58	48	....	do pfd	.....	.....	.....	.....	.....	.....
12	4	33¾	8½	N.P.	Darby Petroleum	4,200	24½	25⅜	24	24	— ⅛
11⅛	4	13½	7⅞	....	do trust ctfs	.....	.....	.....	.....	.....	.....
2½	.74	2⅞	1	N.P.	Derby Oil & Refining	100	2	2	2	2	— ¼
16⅝	4	21⅜	7½	N.P.	do pfd	.....	.....	.....	.....	.....	.....
3¾	1	2	1	N.P.	Gibson Oil	.....	.....	.....	.....	.....	.....
2	.40	.53	.15	N.P.	Gilliland ctfs	.....	.....	.....	.....	.....	.....
118	86¼	165	101⅜	$ 25	Gulf Oil Corp	13,900	140½	148	138¾	144	+ 2¾
2½	.80	3⅜	1	10	Intercontinent Pet	29,100	2¼	2⅜	2	2¼	0
2¼	1⅛	3	1¼	N.P.	Kirby Petroleum	1,200	1½	1⅞	1½	1½	— ⅛
10⅞	5¾	9⅜	5¾	N.P.	Leonard Oil & Dev	2,800	5½	5½	5¼	5¼	— ¼
27½	20	43⅜	20	N.P.	Lion Oil & Refg	1,800	32½	32⅞	31¾	32	— ⅜
59⅜	37	69⅛	48⅜	$ 25	Lone Star Gas	3,300	64¾	*69⅛	64¾	67⅞	+ 3⅛
2⅞	.80	1⅞	.50	1	Magdalena Synd	38,100	60	67	55	55	— 9
21⅜	20⅞	22⅜	22⅜	N.P.	Manhattan Oil	.....	.....	.....	.....	.....	.....
52	12	45	34	N.P.	Margay Oil	.....	.....	.....	.....	.....	.....
3	1⅜	40½	40½	$ 10	Mexican-Panuco	.....	.....	.....	.....	.....	.....
12⅜	5	8	2¾	N.P.	Mexico-Ohio Oil	200	4	4	3⅝	3⅝	— ¼
1⅜	1	1¾	.76	$ 1	Mountain & Gulf	2,200	1⅜	1½	1¼	1¼	— ⅛
29¼	22⅜	28⅜	19⅛	10	Mountain Producers	4,400	22⅜	22⅜	22	22⅜	0
5⅞	4⅜	5⅜	4¼	5	New Bradford	3,000	5⅜	5½	5½	5⅜	— ⅛
6¼	4	5½	2¾	10	New England Fuel	200	3	3	3	3	0
16	9¼	11⅜	7⅛	1	New Mex. & Ariz	200	7⅞	7⅞	7½	7⅜	+ ⅛
13⅞	9	15½	11½	25	New York Oil	.....	.....	.....	.....	.....	.....
.....	.....	40	39⅛	....	North Amer. Oil Cons	.....	.....	.....	.....	.....	.....
12⅜	9½	13¼	9	N.P.	North Cent. Texas	3,700	9¼	9¾	9	9½	+ ¼
9⅜	3¼	6	2¼	N.P.	Pandem	1,100	2⅜	2⅞	2⅜	2⅜	— ½
12⅜	7	15⅜	8½	N.P.	Panapec Oil	.....	.....	.....	.....	.....	.....
9	7⅜	20	10⅜	$ 25	Paragon Refg. B ctfs	.....	.....	.....	.....	.....	.....
.37	.25	9	4	N.P.	Peer Oil Corp	.....	.....	.....	.....	.....	.....
13⅜	5¾	7¾	4⅞	10	Pennok Oil	600	6⅝	6¾	6½	6¾	— ¼
.....	.....	c⅝	3⅛	5	Pittsburgh Oil & Gas	.....	.....	.....	.....	.....	.....
...	...	31⅜	26½	....	Plymouth Oil	15,000	27	29⅞	26½	29½	+ 2½
24⅛	7	18	8	25	Red Bank Oil	100	17¾	17¾	17¾	17¾	— ¼
15½	3⅛	13	4⅜	N.P.	Reiter-Foster	1,200	7⅛	7⅛	6¾	7	— ¼
28⅝	15	25½	22	$ 25	Richfield Oil pfd	300	24¼	24⅜	24	24	0
....	....	23	7½	....	do warrants	.....	.....	.....	.....	.....	.....
7	4½	12	4⅝	N.P.	Ryan Consolidated	1,200	8¼	9	8¼	8¾	+ ¼
8	5¼	7¼	5⅝	$ 10	Salt Creek Cons	500	6	6	5⅞	5⅞	— ⅛
35½	27¼	35	23¾	10	Salt Creek Prod	6,700	27¾	28⅜	26⅝	26⅞	— 1⅜
7	1¼	3½	1	5	Savoy Oil	.....	.....	.....	.....	.....	.....
...	...	7⅛	5⅞	....	Shell Union Oil	.....	.....	.....	.....	.....	.....
....	....	4⅝	3	1	Texon Oil & Land	16,700	3⅝	3¾	3⅝	3⅝	— ⅛
26½	17	22⅞	13	10	Tidal Osage	1,400	15½	15½	15	15	— ⅛
23¾	15	21¼	13⅜	10	do non-voting	400	13⅜	14⅞	13½	13½	— ⅛
92	63½	93¾	75	100	Transcontinental pfd	200	85	86	85	86	+ 1½
23¼	7	74¼	18	10	Venezuela-Mexico	500	71½	*74¼	71½	74¼	+ 4⅛
7⅜	4¼	9½	4¾	5	Venezuelan Petrol	15,600	6⅝	6¾	6	6	— ⅜
8	4¾	8¼	4⅞	$ 1	Woodley Petroleum	300	7⅝	7⅝	6¾	6⅞	— ⅜
6	1¾	8⅜	2⅛	25	Y Oil & Gas (new)	3,700	4⅞	5	4¼	4⅜	+ ¼

*New High †New Low xEx Dividend

New York Curb Bonds

Week Ending Dec. 21

	High	Low	Last	Change
Beacon Oil 6s '36	112½	111⅞	111¾	— ⅜
Cities Service 5s '66	92¾	88⅜	89¾	—2¾
Cities Serv. G 5½s '42	93¼	93	93	0
Cont. Oil 5½s '42	96½	95½	95½	—1
Empire O & R 5½s '42	92¼	91¾	91½	—1
Galena Oil 7s '30	100¾	100⅜	100⅜	0
Gulf Oil 5s '37	100½	100¼	100¼	— ¼
Gulf Oil 5s '47	101¾	100⅜	100¾	—1
Indep. Oil 6s '39	109⅞	106⅛	109¾	+2¾
Richfield Oil 6s '41	126⅛	126⅛	126⅛	— ⅛
Sun Oil 5½s '39	102	101	101	— ¼

New York Bonds

Week Ending Dec. 21

	High	Low	Last	Change
Assoc. Oil gold 6s	102⅞	102½	102½	+ ¼
Atlantic Refg deb. 5s	101	100⅞	101	— ½
Barnsdall Corp. 6s	132½	126½	131⅛	— ⅛
Barnsdall Corp. 6s ex-war.	99¾	99⅜	99⅜	— ⅛
Cal. Pet. 5s	101¾	100¾	101¾	— ¾
Cal. Pet. 5½s	103¼	102½	103	+ ¼
General Asphalt 6s	108½	107¾	107¾	— ¾
General Pet. 5s	101¼	101	101¼	— ¼
Humble Oil & Refg. 5s	100½	100	100	— ⅝
Humble Oil & Refg. 5½s	101¾	101½	101¾	— ¼
Mid. Cont. Pet. 6½s	105	105	105	0
Pan Amer. P & T 7s	104¾	104¾	104¾	+ ¼
Pan Amer. P & T 6s	104⅛	103¾	103¾	— ⅜
Pan Amer. P & T 6s	97	96	96	—1
Pierce Oil deb. 8s	106½	106	106	— ⅛
Prod. & Refg. 8s ex war.	110¾	110¾	110¾	— ¼
Pure Oil 5½s	100½	100	100⅛	— ⅛
Shell Union Oil 5s	98¾	98⅜	98½	0
Simms Pet. 6s	100	100	100	—1
Sinclair Con. Oil 7s	102½	101¾	102	— ½
Sinclair Con. Oil 6½s	101	100½	100½	— ½
Sinclair Con. Oil 6s D	99½	99	99	— ½
Sinclair Con. Oil Crude 5½s	97½	97	97	— ½
Sinclair Pipeline	94¾	94⅛	94¾	— ¼
Skelly Oil 5½s	94	93½	93½	0
S. O. N. Y. 4½s	97¼	96½	97¼	0
S. O. N. J. 5½s	103	102¼	102½	— ⅛
Union Oil of Calif. 5s C	100	99¾	100	0
White Eagle Oil 5½s	105	104¾	104¾	— ¼

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Single Copies 10¢
Subscription rate $3.50 per yr.
in U.S.A. and Mexico (U.S. money)
$4 in Canada
$5 in foreign countries
Trade Mark reg.
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Members of
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NATIONAL PETROLEUM NEWS

Branch Offices:
LOS ANGELES
Petroleum Securities Building
TULSA.
World Building
NEW YORK
342 Madison Avenue
HOUSTON
612 West Building
CHICAGO
35 Wacker Drive

Published by the National Petroleum Publishing Co., MAIN OFFICE - 1213 W. 3rd St., Cleveland, Ohio Copyrighted 1928

Vol. XX Cleveland, Ohio, December 26, 1928 No. 52

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